STATE OF INDIANA

INDIANA UTILITY REGULATORY COMMISSION

PETITION OF NORTHERN INDIANA PUBLIC SERVICE COMPANY FOR AUTHORITY TO MODIFY ITS RATES AND CHARGES FOR ELECTRIC UTILITY SERVICE AND FOR APPROVAL OF: (1) CHANGES TO ITS ELECTRIC SERVICE TARIFF INCLUDING A NEW SCHEDULE OF RATES AND CHARGES AND CHANGES TO THE GENERAL RULES AND REGULATIONS AND CERTAIN RIDERS; (2) REVISED DEPRECIATION ACCRUAL RATES; (3) INCLUSION IN ITS BASIC RATES AND CHARGES OF THE COSTS ASSOCIATED WITH CERTAIN PREVIOUSLY APPROVED QUALIFIED POLLUTION CONTROL PROPERTY, CLEAN COAL TECHNOLOGY, CLEAN ENERGY PROJECTS AND FEDERALLY MANDATED COMPLIANCE PROJECTS; AND (4) ACCOUNTING RELIEF TO ALLOW NIPSCO TO DEFER, AS A REGULATORY ASSET OR LIABILITY, CERTAIN COSTS FOR RECOVERY IN A FUTURE PROCEEDING.	)	CAUSE NO. 44688

INDIANA OFFICE OF UTILITY CONSUMER COUNSELOR

TESTIMONY OF

J. RANDALL WOOLRIDGE – PUBLIC'S EXHIBIT NO. 10

JANUARY 22, 2015

Respectfully submitted,

Scott C. Franson
Attorney No. 27839
Deputy Consumer Counselor

CERTIFICATE OF SERVICE

This is to certify that a copy of the ***OUCC TESTIMONY OF J. RANDALL WOOLRIDGE*** has been served upon the following parties of record in the captioned proceeding by electronic service on January 22, 2015.

NIPSCO
Claudia J. Earls
Frank A. Shambo
Timothy R. Caister
NiSource Corporate Services
150 West Market Street, Suite 600
Indianapolis, Indiana 46204
cjearls@nisource.com
fshamb@nisource.com
tcaister@nisource.com

Kay E. Pashos
Michael B. Cracraft
Philip B. McKiernan
Ice Miller, LLP
One American Square, Suite 2900
Indianapolis, Indiana 46282-0200
kay.pashos@icemiller.com
michael.cracraft@icemiller.com
philip.mckiernan@icemiller.com

LAPORTE COUNTY
Shaw R. Friedman
Friedman & Associates, P.C.
705 Lincolnway
LaPorte, IN 46350
sfriedman.associates@frontier.com

Reginald T. Badeaux IV
Deanna A Dean-Webster
Badeaux Dean-Webster LLP
310 North Alabama Street, Suite 305
Indianapolis, IN 46204
badeaux@bdwlegal.com
dean@bdwlegal.com

Keith L. Beall
Beall & Beall
13238 Snow Owl Dr., Ste. A
Carmel, IN 46033
Phone/fax: 317-810-9357
kbeall@indy.rr.com

NIPSCO INDUSTRIAL GROUP
Bette J. Dodd
Todd A. Richardson
Jennifer W. Terry
Tabitha L. Balzer
Lewis & Kappes, P.C.
One American Square, Suite 2500
Indianapolis, Indiana 46282
BDodd@Lewis-Kappes.com
TRichardson@Lewis-Kappes.com
JTerry@Lewis-Kappes.com
tbalzer@lewis-kappes.com

NLMK INDIANA
Anne E. Becker
Lewis & Kappes, P.C.
One American Square, Suite 2500
Indianapolis, Indiana 46282
abecker@lewis-kappes.com

James Brew
Stone, Mattheis, Xenopulos and Brew
1025 Thomas Jefferson Street, NW
8th Floor, West Tower
Washington, D.C. 20007
jbrew@smxblaw.com

INDIANA MUNICIPAL UTILITY GROUP
Robert M. Glennon
Robert Glennon & Assoc., P.C.
3697 N. Co. Rd. 500 E.
Danville, Indiana 46122
glennon@iquest.net

U.S. STEEL
Nikki G. Shoultz
L. Parvin Price
Bose McKinney & Evans LLP
111 Monument Circle, Suite 2700
Indianapolis, IN 46204
nshoultz@boselaw.com
pprice@boselaw.com

WALMART
Eric E. Kinder
Spilman Thomas & Battle, PLLC
300 Kanawha Boulevard, East
P. O. Box 273
Charleston, WV 25321
ekinder@spilmanlaw.com

Barry A. Naum
Spilman Thomas & Battle, PLLC
1100 Bent Creek Boulevard
Suite 101
Mechanicsburg, PA 17050
bnaum@spilmanlaw.com

Carrie M. Harris
Spilman Thomas & Battle, PLLC
310 First Street, Suite 1100
P.O. Box 90
Roanoke, VA 24002-0090
charris@spilmanlaw.com

UNITED STEELWORKERS
Antonia Domingo
United Steelworkers
60 Boulevard of the Allies
8th Floor
Pittsburgh, PA 15208
adomingo@usw.org

CITIZENS ACTION COALITION
Jennifer A. Washburn
Citizens Action Coalition
603 East Washington Street, Suite 502
Indianapolis, Indiana 46204
jwashburn@citact.org

PRAXAIR
Timothy L. Stewart
Lewis & Kappes, P.C.
One American Square, Suite 2500
Indianapolis, Indiana 46282-0003
tstewart@lewis-kappes.com

Scott C. Franson
Deputy Consumer Counselor

INDIANA OFFICE OF UTILITY CONSUMER COUNSELOR
PNC Center
115 West Washington Street, Suite 1500 South
Indianapolis, IN 46204
infomgt@oucc.in.gov
317/232-2494 – Telephone
317/232-5923 – Facsimile

TESTIMONY OF J. RANDALL WOOLRIDGE, PH.D.
CAUSE NO. 44688
NORTHERN INDIANA PUBLIC SERVICE COMPANY

I. INTRODUCTION AND SUMMARY OF TESTIMONY

Q. PLEASE STATE YOUR FULL NAME, ADDRESS, AND OCCUPATION.

A. My name is J. Randall Woolridge, and my business address is 120 Haymaker Circle, State College, PA 16801. I am a Professor of Finance and the Goldman, Sachs & Co. and Frank P. Smeal Endowed University Fellow in Business Administration at the University Park Campus of Pennsylvania State University. I am also the Director of the Smeal College Trading Room and President of the Nittany Lion Fund, LLC. A summary of my educational background, research, and related business experience is provided in Appendix A.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS PROCEEDING?

A: I explain my recommended overall fair rate of return or cost of capital for Northern Indiana Public Service Company ("NIPSCO" or "Company"). I explain my recommended range of return on common equity ("ROE') range of 8.70% - 8.80% and why my recommended 8.70% is reasonable. I evaluate NIPSCO's rate of return testimony and demonstrate that, if the Commission rejects just two of Mr. Moul's unnecessary adjustments, his Discounted Cash Flow ("DCF") and Capital Asset Pricing Model ("CAPM") produce ROEs of 8.9% and 9.15% respectively, numbers

comparable to my 8.70 - 8.80% range and nearly 200 basis points less than Mr. Moul's proposed 10.75%.

II. EXPLAINING THE DIFFERENCE BETWEEN 8.70% AND 10.75%

Q: PLEASE SUMMARIZE YOUR COST OF EQUITY TESTIMONY.

A: I use both a Discounted Cash Flow ("DCF") analysis and a Capital Asset Pricing Model ("CAPM") analysis. My models incorporate processes, methods and guidelines historically approved by the Commission. My DCF model produces an estimates of 8.70% and 8.80% while my CAPM analysis produces an estimate of 8.10%. I give the greatest weight to my DCF results. My recommended 8.70% cost of common equity results in a weighted cost of capital of 5.89% (Schedule LKM-22, provided by OUCC witness Lafayette K. Morgan, Jr.).

Q. PLEASE SUMMARIZE THE PRIMARY DIFFERENCES IN POSITIONS REGARDING THE COMPANY'S COST OF CAPITAL.

A. Mr. Moul's recommended 10.75% ROE is 205 basis points greater than mine. Despite this apparently significant difference, our DCF and CAPM - the two models to which this Commission has consistently given the greatest weight - are producing similar results. While proxy groups, DCF growth rates, and CAPM market risk premiums account for some of the difference, the overwhelming majority is resolved by addressing two primary issues: (1) Mr. Moul's reliance on the Risk Premium and

1 Comparable Earnings models; and (2) his unnecessary flotation cost and small size
2 adjustments.

3 Mr. Moul's Risk Premium ("RP") analysis produces an 11.39% ROE, more
4 than 100 basis points above his CAPM and 200 basis points above his DCF. His
5 Comparable Earnings ("CE") results are an additional 65 basis points above those
6 figures. The Commission has historically given little to no weight explicitly to either
7 the RP or CE approach and in this case, Mr. Moul's presentation of both models is
8 flawed. His RP analysis is based on a utility bond yield that is about 50 basis points
9 above current yields and an overstated market risk premium of 6.50% that does not
10 reflect economic and market realities. Mr. Moul's CE approach is outdated, not
11 market oriented and based on the historical and projected ROEs for companies that
12 are not comparable to NIPSCO. I recommend the Commission give no weight to
13 either of these two models.

14 If the Commission continues its practice of giving greater emphasis to the
15 DCF and CAPM, the picture becomes even clearer. Mr. Moul's flotation cost
16 adjustment adds 14 basis points to his DCF and CAPM results. His small utility size
17 adjustment adds 100 basis points to his CAPM. Neither adjustment is appropriate in
18 this case. After removing them, the ROE's produced by Mr. Moul's DCF (9.15%) and

CAPM (8.9%)[1] and not dramatically different from my recommended 8.70% ROE, also based on those two models.

A. The Risk Premium and Comparable Earnings Models

Q. PLEASE REVIEW MR. MOUL'S RP ANALYSIS.

A. At pages 41-46 of his testimony and in Schedule 9, Mr. Moul develops an equity cost rate using the RP approach. His risk premium results are summarized in Panel C of Exhibit JRW-13. Mr. Moul's RP equity cost rate of 11.39% includes a base yield of 4.75%, risk premium of 6.50%, and a flotation cost adjustment of 0.14%.

Q. WHAT ARE THE ERRORS IN MR. MOUL'S RP ANALYSIS?

A. The errors in Mr. Moul's RP equity cost rate approach include: (1) an inflated base interest rate; (2) an excessive risk premium, which is based on the historical relationship between stock and bond returns; and (3) the flotation cost adjustment. The flotation cost adjustment is addressed separately below.

1. Base Interest Rate

Q. PLEASE DISCUSS THE BASE YIELD OF MR. MOUL'S RP ANALYSIS.

A. The base yield in Mr. Moul's RP analysis is the prospective yield on long-term, 'A' rated public utility bonds. This is erroneous for two reasons. First, the 4.75% projected yield

[1] See Moul Attachment 13A, Schedule 1, page 2. DCF = 9.15% prior to flotation cost adjustment; CAPM = 10.14%, less 0.14% flotation cost adjustment = 10%, less 1.10% size adjustment = 8.9%.

is about 50 basis points above current long-term utility bond yields. Second, using the yield on these securities inflates the required return on equity for the Company in two ways: (1) long-term bonds are subject to interest rate risk, a risk which does not affect common stockholders since dividend payments (unlike bond interest payments) are not fixed but tend to increase over time; and (2) the base yield in Mr. Moul's risk premium study is subject to credit risk since it is not default risk-free like an obligation of the U.S. Treasury. As a result, its yield-to-maturity includes a premium for default risk and, therefore, is above its expected return. Hence, using a bond's yield-to-maturity as a base yield, results in an overstatement of investors' return expectations.

2. Risk Premium

Q. PLEASE REVIEW MR. MOUL'S RISK PREMIUM STUDY.

A. Mr. Moul performs a historical RP study that appears in Schedule 10 of Ex.- NIPSCO-Moul-2. This study involves an assessment of the historical differences between the arithmetic mean returns on large company common stocks and long-term corporate and U.S. Treasury bonds over various time periods between the years 1926-2014. In particular, in selecting a risk premium of 6.50%, Mr. Moul cites arithmetic mean equity risk premiums of 7.60% during low interest rate environments and 5.79% during all interest rate environments.

1 **Q. WHAT ARE THE ERRORS IN MR. MOUL'S RISK PREMIUM OF 6.50%?**

2 A. The risk premium of 6.50% is erroneous and should be ignored for three reasons.
3 First, it is well known that electric utility stocks are less risky than stocks in general.
4 However, Mr. Moul does not account for the lower risk of electric utility stocks.
5 Second, Mr. Moul has computed historical risk premiums during high, low, and all
6 interest rate environments. His definition of these alternative environments, and the
7 time period over which he computes the equity risk premium, are arbitrary and not
8 specified or analyzed by Mr. Moul. As such, the historical risk premium of 7.28%
9 during low interest rate environments is an arbitrary figure created by Mr. Moul.
10 Finally, it is well known that using the historical relationship between stock and bond
11 returns to measure an *ex ante* equity risk premium is erroneous and overstates the true
12 market or equity risk premium.
13

14 **Q. PLEASE ADDRESS THE ISSUES INVOLVED IN USING HISTORICAL**
15 **STOCK AND BOND RETURNS TO COMPUTE A FORWARD-LOOKING**
16 **OR *EX ANTE* RISK PREMIUM.**

17 A. As previously discussed, it is common to compute a market risk premium as the
18 difference between historical stock and bond returns. However, this approach can
19 produce differing results depending on several factors, including the measure of
20 central tendency used, the time period evaluated, and the stock and bond market
21 index employed. In addition, there are a myriad of empirical problems in the

1 approach, which result in historical market returns producing inflated estimates of
2 expected risk premiums. Among the errors are the U.S. stock market survivorship
3 bias (the "Peso Problem"), the company survivorship bias (only successful companies
4 survive – poor companies do not survive), the measurement of central tendency (the
5 arithmetic versus geometric mean), the historical time horizon used, the change in
6 risk and required return over time, the downward bias in bond historical returns, and
7 unattainable return bias (the Ibbotson procedure presumes monthly portfolio
8 rebalancing).[2] The bottom line is that there are a number of empirical problems in
9 using historical stock and bond returns to measure an expected equity risk premium.

10 **Q. HAS THE COMMISSION SUPPORTED MR. MOUL'S RP APPROACH IN**
11 **PRIOR CASES?**

12 A: No, quite the opposite. Mr. Moul offered a RP analysis in NIPSCO's last rate case,
13 Cause No. 43526 (8/25/10) that produced an ROE of 11.67%, almost 120 basis points
14 above the high end of the IURC's reasonable range of 9.9% - 10.5% and more than
15 170 basis points above the 9.9% ROE ultimately approved. Order at 22, 31. In Cause
16 No. 43680 (Indiana American Water, 4/30/10), Mr. Moul's RP analysis produced an
17 11.99% ROE, nearly 200 basis points above the Commission approved 10.0%. Order
18 at 25, 49.

[2] These issues are addressed in a number of studies, including: Aswath. Damodaran, "Equity Risk Premiums (ERP): Determinants, Estimation and Implications – The 2015 Edition" NYU Working Paper, 2015, pp. 32-5; See Richard Roll, "On Computing Mean Returns and the Small Firm Premium," *Journal of Financial Economics*, pp. 371-86, (1983); Jay Ritter, "The Biggest Mistakes We Teach," *Journal of Financial Research* (Summer 2002); Bradford Cornell, *The Equity Risk Premium* (New York, John Wiley & Sons),1999, pp. 36-78; and J. P. Morgan, "The Most Important Number in Finance," p. 6.

1 **Q. PLEASE DISCUSS MR. MOUL'S COMPARABLE EARNINGS ANALYSIS.**

2 A. At pages 51-55 of his testimony and in Schedule 12, Mr. Moul develops an equity cost
3 rate for the Company employing the CE approach. His methodology involves
4 averaging historical and prospective returns on common equity for a proxy group of
5 non-utility companies which are "comparable" in risk to his proxy group as
6 determined from screening *Value Line's* Value Screen database. Mr. Moul screens the
7 database on six risk measures and arrives at a group of eleven unregulated
8 comparable companies. As shown in Panel E of Exhibit JRW-13, the average of the
9 historical and projected median returns on common equity for the group is 12.10%.

10 This approach is fundamentally flawed for two reasons. Mr. Moul has not
11 performed any analysis to examine whether his return on equity figures are likely
12 measures of long-term earnings expectations. Second, and more importantly, since
13 Mr. Moul has not evaluated the market-to-book ratios for these companies, he cannot
14 indicate whether the past and projected returns on common equity are above or below
15 the investors' requirements. These returns on common equity are excessive if the
16 market-to-book ratios for these companies are above 1.0. For example,
17 AmerisourceBergen is one of the companies listed as being 'comparable' to NIPSCO.
18 The projected return on equity of AmerisourceBergen is 44.5%. However, I doubt if
19 any financial analyst, including Mr. Moul, would suggest that AmerisourceBergen
20 has an equity cost rate of 44.5%. Indeed, the market-to-book ratio for the company is

in excess of 10.0. This indicates that its return on equity is well above its cost of equity capital.

Q. ARE YOU AWARE OF ANY COMMISSION ORDERS REJECTING THE CE METHOD?

A: Yes. Mr. Moul advocated its use in Cause No. 43680 (Indiana American Water). In its April 30, 2010 Order in that Cause at pages 48-49, the Commission recognized criticisms raised by OUCC witness Kaufman and Industrial Group witness Gorman and concluded that the results from Mr. Moul's CE model should be disregarded. Order at 48-49. In Cause No. 43526 (NIPSCO Electric rates, August 25, 2010) Mr. Moul's CE model produced a 15.70% recommended ROE, almost 300 basis points above his CAPM recommendation (which also included flotation costs and a small size adjustment) and almost 450 basis points above his DCF results (which included flotation costs). While not explicitly rejecting the CE, the Commission found a reasonable ROE range was between 9.9% and 10.5%, meaning the upper range of reasonable was 520 basis points below Mr. Moul's CE results. In Cause No. 39315 (Peoples Natural Gas, 10/21/92), the Commission found the CE analysis put forth by Peoples "should be given little weight" based on the "reasonable concerns" raised by the OUCC similar to those raised here. The Peoples case also cited the Order in Cause No. 39097 (Midwest Natural Gas, 11/1/91) where the Commission found at

page 23 that the CE approach, "is an accounting based methodology and thus unreliable due to the variations from company to company on methods of accounting."

B. The Unnecessary Flotation Cost Adjustment

Q. PLEASE DISCUSS MR. MOUL'S ADJUSTMENT FOR FLOTATION COSTS.

A. Mr. Moul makes an upward adjustment of 14 basis points to account for flotation costs. He applies this adjustment to all his models except CE. This adjustment factor is erroneous for several reasons.

First, this Commission has typically allowed utilities to recover measurable and reasonable flotation costs recently incurred or expected in the near future. To justify his adjustment, Mr. Moul references a 2010 equity issue by NiSource. These are not recent, test-year flotation costs for the Company, and the request is inconsistent with the IURC's previous flotation cost findings:

> Although this Commission has recognized the need to adjust the cost of equity to reflect the costs associated with equity issuances, it has heretofore authorized such adjustments only when there was a projected near-term need to issue new stock...[3]

NIPSCO's request is not only at odds with the PSI Order, it requests annual revenues in the form of a higher return on equity for flotation costs that have not been identified.

[3] Cause No 40003 (PSI; September 27, 1996) at page 30, emphasis added.

1 Second, it is commonly argued that a flotation cost adjustment (such as that
2 used by the Company) is necessary to prevent the dilution of the existing
3 shareholders. In this case, Mr. Moul justifies a flotation cost adjustment by referring
4 to bonds and the manner in which issuance costs are recovered by including the
5 amortization of bond flotation costs in annual financing costs. This is incorrect for
6 several reasons:

7 (1) If an equity flotation cost adjustment is similar to a debt flotation cost
8 adjustment, the fact that the market-to-book ratios for electric utility
9 companies are over 1.5X actually suggests that there should be a flotation cost
10 reduction (and not an increase) to the equity cost rate. This is because when
11 (a) a bond is issued at a price in excess of face or book value, and (b) the
12 difference between market price and the book value is greater than the
13 flotation or issuance costs, the cost of that debt is lower than the coupon rate
14 of the debt. The amount by which market values of electric utility companies
15 are in excess of book values is much greater than flotation costs. Hence, if
16 common stock flotation costs were exactly like bond flotation costs, and one
17 was making an explicit flotation cost adjustment to the cost of common
18 equity, the adjustment would be downward;

19 (2) If a flotation cost adjustment is needed to prevent dilution of existing
20 stockholders' investment, then the reduction of the book value of stockholder
21 investment associated with flotation costs can occur only when a company's

1 stock is selling at a market price at/or below its book value. As noted above,
2 electric utility companies are selling at market prices well in excess of book
3 value. Hence, when new shares are sold, existing shareholders realize an
4 increase in the book value per share of their investment, not a decrease;
5 (3) Flotation costs consist primarily of the underwriting spread or fee and
6 not out-of-pocket expenses. On a per-share basis, the underwriting spread is
7 the difference between the price the investment banker receives from investors
8 and the price the investment banker pays to the company. Therefore, these are
9 not expenses that must be recovered through the regulatory process.
10 Furthermore, the underwriting spread is known to the investors who are
11 buying the new issue of stock, and who are well aware of the difference
12 between the price they are paying to buy the stock and the price that the
13 Company is receiving. The offering price they pay is what matters when
14 investors decide to buy a stock based on its expected return and risk prospects.
15 Therefore, the company is not entitled to an adjustment to the allowed return
16 to account for those costs; and
17 (4) Flotation costs, in the form of the underwriting spread, are a form of a
18 transaction cost in the market. They represent the difference between the
19 price paid by investors and the amount received by the issuing company.
20 Whereas the Company believes that it should be compensated for these
21 transaction costs, it has not accounted for other market transaction costs in

1 determining its cost of equity. Most notably, brokerage fees that investors pay
2 when they buy shares in the open market are another market transaction cost.
3 Brokerage fees increase the effective stock price paid by investors to buy
4 shares. If the Company had included these brokerage fees or transaction costs
5 in its DCF analysis, the higher effective stock prices paid for stocks would
6 lead to lower dividend yields and equity cost rates. This would result in a
7 downward adjustment to their DCF equity cost rate.

C. The Unnecessary Size Adjustment

8 **Q. PLEASE DISCUSS MR. MOUL'S PROPOSED SIZE ADJUSTMENT.**

9 A. Mr. Moul has added a size adjustment of 1.10% to his CAPM equity cost rate to
10 account for the small size of NIPSCO. This adjustment increases his CAPM equity
11 cost rate from 8.90% to 10.0%.
12

13 **Q. IS A SIZE ADJUSTMENT APPROPRIATE FOR UTILITIES?**

14 A. No. There are three reasons that there is no need for a size adjustment or premium to
15 the CAPM for utilities: (1) a company's credit rating includes the size of the
16 company: (2) the size premium is based on historical returns which are upwardly
17 biased measures of expected risk premiums; and (3) empirical studies show that size
18 premiums are not required for utilities.

19 First, a Company's credit rating incorporates many different risk factors,
20 including the size of the company. In the case of NIPSCO, the Company's S&P and

1 Moody's credit ratings suggest it is similar in risk to the Electric Proxy Group.
2 Therefore, there is no valid reason to include a size premium in the equity cost rate.
3 Second, this size adjustment is based on the historical stock market returns
4 studies as performed by Morningstar (formerly Ibbotson Associates). As discussed
5 above, there are numerous errors in using historical market returns to compute risk
6 premiums. The net result is that Ibbotson's size premiums are poor measures for risk
7 adjustment to account for the size of the utility.
8 Third, Professor Annie Wong has tested for a size premium in utilities and
9 concluded that, unlike industrial stocks, utility stocks do not exhibit a significant size
10 premium.[4] As explained by Professor Wong, there are several reasons why such a size
11 premium would not be attributable to utilities. Utilities are regulated closely by state
12 and federal agencies and commissions, and hence, their financial performance is
13 monitored on an ongoing basis by both the state and federal governments. In addition,
14 public utilities must gain approval from government entities for common financial
15 transactions such as the sale of securities. Furthermore, unlike their industrial
16 counterparts, accounting standards and reporting are fairly standardized for public
17 utilities. Finally, a utility's earnings are predetermined to a certain degree through the
18 ratemaking process in which performance is reviewed by state commissions and other
19 interested parties. Overall, in terms of regulation, government oversight, performance

[4] Annie Wong, "Utility Stocks and the Size Effect: An Empirical Analysis," *Journal of the Midwest Finance Association*, pp. 95-101, (1993).

review, accounting standards, and information disclosure, utilities are much different than industrials, which could account for the lack of a size premium.

Q. HAS THE COMMISSION PREVIOUSLY ADDRESSED SMALL SIZE ADJUSTMENTS?

A: Yes. The Commission supported the view that Ibbotson's small cap adjustment cannot be directly applied to utilities in South Haven Sewer, Cause No. 40398 (May 28, 1997), pages 30 - 31:

> We are familiar with the Ibbotson derived 400 basis point small company premium used by Mr. Beatty. The rationale behind this approach is that, all other things being equal the smaller the company, the greater the risk. However, to blindly apply this risk premium to Petitioner is to ignore the fact that Petitioner is a regulated utility. The risks from small size for a regulated utility are not as great as those small companies facing competition in the open market.

The Commission again expressed its opinion about the applicability of a small company risk adjustment in Indiana-American's rate case, Cause No. 43680. On page 47 of its final order the Commission stated as follows:

> The Commission rejects Petitioner's equity size premium adjustment because it cannot be directly applied to regulated water utilities. Regulated water utilities do not experience the same risks as other small companies. Therefore a size adjustment is simply inapplicable and inappropriate for Indiana American.

The Commission also expressed its opinion regarding small company adjustments in Cause No. 44104 Water Service Company of Indiana (a company with

less than 1,000 customers).[5] The Commission's final order recognized a small company adjustment of 40 basis points was too high and authorized a small company adjustment of only 30 basis points (page 23). The Commission's small company adjustment in Cause No. 44104 further clarifies that Mr. Moul's proposed small company adjustment for billion dollar companies is not warranted.

Q. DOES THE INCREASED PREVALENCE OF TRACKERS FURTHER MITIGATE THE NEED TO ADJUST FOR SMALL SIZE?

A: Yes. Trackers reduce volatility/risk. The increased use of trackers for regulated electric utilities further reduces the need to adjust for small size risk.

D. Conclusions

Q. WHAT CONCLUSIONS SHOULD THE COMMISSION DRAW BASED ON THESE DIFFERENCES BETWEEN MR. MOUL'S ROE RECOMMENDATION AND YOURS?

A: The Commission should conclude that there is no reason in this case to deviate from its past practices. The Commission has historically not given great weight to the Risk Premium and Comparable Earnings models. The flaws in the versions proposed by Mr. Moul should persuade the Commission that this is not the time to change course.

[5] While Water Service Company of Indiana is owned by larger holding company (Utilities Inc.,), Utilities Inc., is still smaller than any of the companies in Mr. Moul's proxy group.

With no flotation costs within the past five years and no evidence of an impending equity issuance, Mr. Moul's flotation cost adjustment is unnecessary and contrary to prior Orders. Similarly, the Commission has previously recognized that while a small company size adjustment may be appropriate in some cases, NIPSCO's size and regulated status make the adjustment unnecessary.

The Commission may then turn its attention to understanding how historically low inflation is driving DCF and CAPM ROE estimates to a range between 8.70% (my DCF with my proxy group) and 9.15% (Mr. Moul's CAPM with his proxy group but without flotation cost or size adjustments) and why I believe my recommended 8.70% is both appropriate and the more reasonable result.

III. RATE OF RETURN, CAPITAL MARKET CONDITIONS, AND CAPITAL STRUCTURE

Q. WHAT COMPRISES A UTILITY'S "RATE OF RETURN"?

A. A company's overall rate of return consists of three main categories: (1) capital structure (i.e., ratios of short-term debt, long-term debt, preferred stock and common equity); (2) cost rates for short-term debt, long-term debt, and preferred stock; and (3) common equity cost, otherwise known as ROE.

Q. WHAT IS A UTILITY'S ROE INTENDED TO REFLECT?

A. An ROE is most simply described as the allowed rate of profit for a regulated company. In a competitive market, a company's profit level is determined by a variety of factors, including the state of the economy, the degree of competition a company faces, the ease of entry into its markets, the existence of substitute or complementary products/services, the company's cost structure, the impact of technological changes, and the supply and demand for its services and/or products. For a regulated monopoly, the regulator determines the level of profit available to the utility. The United States Supreme Court established the guiding principles for establishing an appropriate level of profitability for regulated public utilities in two cases: (1) *Bluefield* and (2) *Hope*.[6] In those cases, the Court recognized that the fair rate of return on equity should be: (1) comparable to returns investors expect to earn on other investments of similar risk; (2) sufficient to assure confidence in the company's financial integrity; and (3) adequate to maintain and support the company's credit and to attract capital.

Thus, the appropriate ROE for a regulated utility requires determining the market-based cost of capital. The market-based cost of capital for a regulated firm represents the return investors could expect from other investments, while assuming no more and no less risk. The purpose of all of the economic models and formulas in cost of capital testimony (including those presented later in my testimony) is to estimate, using market data of similar-risk firms, the rate of return equity investors

[6] *Federal Power Commission v. Hope Natural Gas Co.*, 320 U.S. 591 (1944) ("*Hope*") and *Bluefield Water Works and Improvement Co. v. Public Service Commission of West Virginia*, 262 U.S. 679 (1923) ("*Bluefield*").

1 require for that risk-class of firms in order to set an appropriate ROE for a regulated
2 firm.

3 **Q. HOW IS THE REST OF YOUR TESTIMONY ORGANIZED?**

4 A. First, I will review my cost of capital recommendation for NIPSCO and review the
5 primary areas of contention between NIPSCO's rate of return position and the OUCC's
6 rate of return position. Second, I discuss my proxy group of electric utility companies
7 for estimating the cost of capital for NIPSCO. Third, I present my recommendations
8 for the Company's capital structure and debt cost rate. Fourth, I discuss the concept of
9 the cost of equity capital, and then estimate the equity cost rate for NIPSCO. Finally, I
10 critique the Company's rate of return analysis and testimony of its witness Paul R. Moul.
11

12 **Q. PLEASE INITIALLY PROVIDE YOUR ASSESSMENT OF CURRENT**
13 **CAPITAL MARKET CONDITIONS.**

14 A. Interest rates and capital costs in the U.S. remain at historic lows as economic growth in
15 the U.S. and around the world remains tepid. A more detailed discussion is provided in
16 Appendix B. The summary points are these. In the wake of the financial crisis, the
17 Federal Reserve has directed a very aggressive monetary policy aimed at spurring the
18 economy. The Fed's approach included massive purchases of bonds in the markets as
19 well as lowering the Federal Funds rate range to the 0.0% to 0.25% range. The bond
20 buying program ended in 2014, and in December 2015 the Fed, in a much anticipated

move, increased the Fed Fund's rate range to 0.25% to 0.50%. As the Fed has scaled back its monetary policy efforts, economists have forecasted an increase in interest rates. However, as highlighted in two recent studies, economists have been forecasting higher interest rates for almost a decade, and these forecasts have continually been wrong.[7] This is because, as highlight by former Federal Reserve Chairman Ben Bernanke, while the Fed can affect short-term interest rates, long-term interest rates are driven by economic growth and inflation.[8] This is exemplified by the fact that when the Fed announced the increase in the Fed Funds rate range on December 16th, long-term interest rates decreased! And with global economic growth at very low levels, and expected inflation below the Fed's target of 2.0% for almost four years, interest rates and capital costs remain at very low levels.

Q. PLEASE REVIEW THE COMPANY'S PROPOSED RATE OF RETURN.

A. The Company has proposed a capital structure from investor-provided capital 41.56% long-term debt and 58.44% common equity. The Company has recommended a long-term debt cost rate of 5.71%. NIPSCO witness Mr. Paul R. Moul has recommended a common equity cost rate of 10.75%. The Company's overall proposed rate of return from investor-provided capital is 8.65%. With the inclusion of investment tax credits,

[7] Joe Weisenthal, "How Interest Rates Keep Making People on Wall Street Look Like Fools," Bloomberg.com, March 16, 2015. http://www.bloomberg.com/news/articles/2015-03-16/how-interest-rates-keep-making-people-on-wall-street-look-like-fools. Akin Oyedele, "Interest Rate Forecasters are Shockingly Wrong Almost All of the Time," *Business Insider*, July 18, 2015. http://www.businessinsider.com/interest-rate-forecasts-are-wrong-most-of-the-time-2015-7.
[8] *Ibid.*

cost-free capital, and customer deposits, this produces a rate of return for rate setting purposes of 6.82%.

Q. WHAT ARE YOUR RECOMMENDATIONS REGARDING NIPSCO'S CAPITAL STRUCTURE?

A. I have reviewed the Company's proposed capital structure and overall cost of capital. The proposed capitalization has much more equity and much less financial risk than the capitalizations of: (1) the Company's parent, NiSource; and (2) publicly-traded electric utility companies. Due to Indiana case law which prohibits hypothetical capital structures in utility rate making, I am adopting the Company's proposed capital structure.

Q. PLEASE DISCUSS THE ISSUE OF PUBLIC UTILITY HOLDING COMPANY'S SUCH AS NISOURCE USING DEBT TO FINANCE THE EQUITY IN SUBSIDIARIES SUCH AS NIPSCO.

A. Moody's recently published an article on the use of low-cost debt financing by public utility holding to increase their ROEs. The summary observations included the following:[9]

> US utilities use leverage at the holding-company level to invest in other businesses, make acquisitions and earn higher returns on equity. In some cases, an increase in leverage at the parent can hurt the credit profiles of its regulated subsidiaries.

[9] Moody's Investors' Service, "High Leverage at the Parent Often Hurts the Whole Family," May 11, 2015, p.1.

This financial strategy has traditionally been known as double leverage. Moody's defined double leverage in the following way:[10]

> Double leverage is a financial strategy whereby the parent raises debt but downstreams the proceeds to its operating subsidiary, likely in the form of an equity investment. Therefore, the subsidiary's operations are financed by debt raised at the subsidiary level and by debt financed at the holding-company level. In this way, the subsidiary's equity is leveraged twice, once with the subsidiary debt and once with the holding-company debt. In a simple operating-company / holding-company structure, this practice results in a consolidated debt-to-capitalization ratio that is higher at the parent than at the subsidiary because of the additional debt at the parent.

Moody's goes on to discuss the potential risk to utilities of the strategy, and specifically notes that regulators could take it into consideration in setting authorized ROEs.[11]

> **"Double leverage" drives returns for some utilities but could pose risks down the road.** The use of double leverage, a long-standing practice whereby a holding company takes on debt and downstreams the proceeds to an operating subsidiary as equity, could pose risks down the road if regulators were to ascribe the debt at the parent level to the subsidiaries or adjust the authorized return on capital.

Q. HOW DO YOU RECOMMEND THE COMMISSION DEAL WITH THIS ISSUE?

A. I strongly recommend that the Commission explicitly recognize the double leverage of NiSource and the resulting high common equity ratio in NIPSCO's capital structure in setting the ROE for the Company.

[10] *Ibid.* p. 5.
[11] *Ibid.* p. 1.

Q. WHAT ARE YOUR RECOMMENDATIONS REGARDING THE APPROPRIATE ROE FOR NIPSCO?

A. To estimate an equity cost rate for NIPSCO, I have applied the Discounted Cash Flow Model ("DCF") and the Capital Asset Pricing Model ("CAPM") to my proxy group of electric utilities ("Electric Proxy Group"). I have also used Mr. Moul's proxy group ("Moul Proxy Group"). I explain my equity cost rate of 8.70% based on the Company's proposed capital structure with a common equity ratio of 58.44% from investor provided capital. This results in an overall rate of return of 5.89% for rate setting purposes once investment tax credits, cost-free capital, and customer deposits are included. This is shown in Table 1 below and Panel A of Exhibit JRW-1.

Table 1 – Rate of Return with 58.44% Common Equity Ratio

Investor-Provided Capital	Capitalization Ratio	Cost Rate	Weighted Cost Rate
Long-Term Debt	41.56%	5.71%	2.37%
Common Equity	58.44%	8.70%	5.08%
Total	100.00%		7.46%

Rate-Setting Purposes	Capitalization Ratio	Cost Rate	Weighted Cost Rate
JDITC	0.09%	7.46%	0.01%
Cost-Free Capital	20.51%	0.00%	0.00%
Customer Deposits	1.53%	4.58%	0.07%
Long-Term Debt	32.36%	5.71%	1.85%
Common Equity	45.51%	8.70%	3.96%
Total	100.00%		5.89%

As I stated above, I am accepting the Company's proposed capital structure because Indiana law docs not allow the Commission to consider alternative versions. If I were filing this testimony in a jurisdiction which permitted an alternative capitalization, I would propose a capital structure consisting of 50% debt and 50% equity. In this case, I would use thc high end of my equity cost rate range, 8.80%, as my equity cost rate. The overall cost of capital results are provided in Table 1A.

Table 1A – Rate of Return with 50.0% Common Equity Ratio

Investor-Provided Capital	Capitalization Ratio	Cost Rate	Weighted Cost Rate
Long-Term Debt	50.00%	5.71%	2.86%
Common Equity	50.00%	8.80%	4.40%
Total	100.00%		7.26%

Rate-Setting Purposes	Capitalization Ratio	Cost Rate	Weighted Cost Rate
JDITC	0.09%	7.26%	0.01%
Cost-Free Capital	20.51%	0.00%	0.00%
Customer Deposits	1.53%	4.58%	0.07%
Long-Term Debt	38.94%	5.71%	2.22%
Common Equity	38.94%	8.80%	3.43%
Total	100.00%		5.73%

Along with the increased debt in this version, I would also increase my recommended common equity cost rate to 8.80%. With the inclusion of investment tax credits, cost-free capital, and customer deposits, this capital structure would have produced a rate of return for rate setting purposes of 5.73%.

IV. PROXY GROUP SELECTION

Q. PLEASE DESCRIBE YOUR APPROACH TO DEVELOPING A FAIR RATE OF RETURN RECOMMENDATION FOR NIPSCO.

A. To develop a fair rate of return recommendation for the Company, I have evaluated the return requirements of investors on the common stock of a proxy group of publicly-held electric utility companies. I have employed also Mr. Moul's proxy group.

Q. PLEASE DESCRIBE YOUR PROXY GROUP OF ELECTRIC COMPANIES.

A. My selection criteria for the Electric Proxy Group include the following:

1. At least 50% of revenues from regulated electric operations as reported by *AUS Utilities Report*;
2. Listed as an Electric Utility by *Value Line Investment Survey* and listed as an Electric Utility or Combination Electric & Gas Utility in *AUS Utilities Report*;
3. An investment grade issuer credit rating by Moody's and Standard & Poor's ("S&P");
4. Has paid a cash dividend in the past six months, with no cuts or omissions;
5. Not involved in an acquisition of another utility, the target of an acquisition, or in the sale or spin-off of utility assets, in the past six months; and

6. Analysts' long-term earnings per share ("EPS") growth rate forecasts available from Yahoo, Reuters, and/or Zacks.

My Electric Proxy Group includes twenty-seven companies. Summary financial statistics for the proxy group are listed in Panel A of page 1 of Exhibit JRW-4.[12] The median operating revenues and net plant among members of the Electric Proxy Group are $3,487.5 million and $11,467.8 million, respectively. The group receives 81% of its revenues from regulated electric operations, has BBB+/Baa1 issuer credit ratings from S&P and Moody's respectively, a current common equity ratio of 48.1%, and an earned return on common equity of 9.2%.

Q. PLEASE DESCRIBE MR. MOUL'S PROXY GROUP OF ELECTRIC UTILITY COMPANIES.

A. The Moul Proxy Group consists of nine electric utility companies. I am also using his group, but have excluded two companies that have since become involved in merger and acquisition activity.[13] Summary financial statistics for the proxy group are listed on Panel B of page 1 of Exhibit JRW-4. The median operating revenues and net plant among members of the Moul Proxy Group are $6,705.0 million and $17,867.0 million, respectively. The group receives 70% of revenues from regulated electric operations, has an average A- issuer credit rating from S&P and an average A3 long-

[12] In my testimony, I present financial results using both mean and medians as measures of central tendency. However, due to outliers among means, I have used the median as a measure of central tendency.
[13] These companies include Black Hills and Duke Energy.

term rating from Moody's, a current common equity ratio of 46.7%, and an earned return on common equity of 10.3%.

Q. HOW DOES THE INVESTMENT RISK OF THE COMPANY COMPARE TO THAT OF THE TWO PROXY GROUPS?

A. I believe that bond ratings provide a good assessment of the investment risk of a company. Exhibit JRW-4 also shows S&P and Moody's issuer credit ratings for the companies in the two groups. NIPSCO's issuer credit rating is BBB+ according to S&P and Baa1 according to Moody's. The average S&P issuer credit ratings for the Electric and Moul Proxy Group are BBB+ and Baa1. Therefore, I believe that NIPSCO's investment risk is in line with the investment risk of the Electric Proxy Group.

Q. WHICH PROXY GROUP DO YOU BELIEVE PROVIDES A BETTER MEASURE OF THE EQUITY COST RATE FOR NIPSCO?

A. Due to its much larger size and similar credit ratings, I do believe that the Electric Proxy Group is the better group to estimate an equity cost rate for NIPSCO.

V. CAPITAL STRUCTURE RATIOS AND DEBT COST RATES

Q. PLEASE DESCRIBE NIPSCO'S PROPOSED CAPITAL STRUCTURE AND SENIOR CAPITAL COST RATES.

A. The Company has proposed a capital structure from investor-provided capital 41.56%

long-term debt and 58.44% common equity. The Company has recommended a long-term debt cost rate of 5.71%. This is summarized in Panel A of Exhibit JRW-5. The Company's proposed capitalization for rate-setting purposes, which includes investment tax credits, cost-free capital, and customer deposits is also shown in Panel A of Exhibit JRW-5.

Q. WHAT ARE THE COMMON EQUITY RATIOS IN THE CAPITALIZATIONS OF THE TWO PROXY GROUPS?

A. As shown in Exhibit JRW-4, the median common equity ratios of my Electric Proxy Group and the Moul group are 48.1% and 46.7%, respectively. This indicates that the Company's proposed capitalization from investor capital with a common equity ratio of 58.44% has much higher equity and therefore much lower financial risk than the capital structures of the two proxy groups. It should be noted that these capitalization ratios include total debt which consists of both short-term and long-term debt. In assessing financial risk, short-term debt is included because, just like long-term debt, short-term has a higher claim on the assets and earnings of the company and requires timely payment of interest and repayment of principal.

Q. HOW DOES THE COMPANY'S PROPOSED COMMON EQUITY RATIO COMPARE TO THAT OF ITS PARENT, NISOURCE?

A. According to *AUS Utilities Report*, NiSource has a current common equity ratio of 36.4%. Therefore, NIPSCO proposes a capitalization for NIPSCO that has a higher

1 common equity ratio by more than 20%. NiSource has a much more debt and financial
2 risk than NIPSCO.

3 **Q. PLEASE DISCUSS THE SIGNIFICANCE OF THE AMOUNT OF EQUITY**
4 **THAT IS INCLUDED IN AN ELECTRIC UTILITY'S CAPITAL**
5 **STRUCTURE.**

6 A. An electric utility's decision as to the amount of equity capital it will incorporate into
7 its capital structure involves fundamental trade-offs relating to the amount of
8 financial risk the firm carries, the overall revenue requirements its customers are
9 required to bear through the rates they pay, and the return on equity that investors will
10 require.

11

12 **Q. PLEASE DISCUSS A UTILITY'S DECISION TO USE DEBT VERSUS**
13 **EQUITY TO MEET ITS CAPITAL NEEDS.**

14 A. Utilities satisfy their capital needs through a mix of equity and debt. Because equity
15 capital is more expensive than debt, the issuance of debt enables a utility to raise
16 more capital for a given commitment of dollars than it could raise with just equity.
17 Debt is, therefore, a means of "leveraging" capital dollars. However, as the amount
18 of debt in the capital structure increases, its financial risk increases and the risk of the
19 utility perceived by equity investors also increases. Significantly for this case, the
20 converse is also true. As the amount of debt in the capital structure decreases, the
21 financial risk decreases. The required return on equity capital is a function of the

amount of overall risk that investors perceive, including financial risk in the form of debt.

Q. WHY IS THIS RELATIONSHIP IMPORTANT TO THE UTILITY'S CUSTOMERS?

A. Just as there is a direct correlation between the utility's authorized return on equity and the utility's revenue requirements (the higher the return, the greater the revenue requirement), there is a direct correlation between the amount of equity in the capital structure and the revenue requirements the customers are called on to bear. Again, equity capital is more expensive than debt. Not only does equity command a higher cost rate, it also adds more to the income tax burden that ratepayers are required to pay through rates. As the equity ratio increases, the utility's revenue requirements increase and the rates paid by customers increase. If the proportion of equity is too high, rates will be higher than they need to be. For this reason, the utility's management should pursue a capital acquisition strategy that results in the proper balance in the capital structure.

Q. HOW HAVE ELECTRIC UTILITIES TYPICALLY STRUCK THIS BALANCE?

A. Due to regulation and the essential nature of its output, an electric utility is exposed to less business risk than other companies that are not regulated. This means that an electric utility can reasonably carry relatively more debt in its capital structure than

can most unregulated companies. The utility should take appropriate advantage of its lower business risk to employ cheaper debt capital at a level that will benefit its customers through lower revenue requirements. Typically, one may see equity ratios for electric utilities range from the 40% to 50% range.

Q. GIVEN YOUR VIEW THAT NIPSCO'S EQUITY RATIO IS HIGHER THAN THAT OF THE PROXY GROUPS AND ITS PARENT, NISOURCE, WHAT SHOULD THE COMMISSION DO IN THIS RATEMAKING PROCEEDING?

A. When a regulated electric utility's actual capital structure contains a high equity ratio, the options are: (1) to impute a more reasonable capital structure and to reflect the imputed capital structure in revenue requirements; or (2) to recognize the downward impact that an unusually high equity ratio will have on the financial risk of a utility and authorize a lower common equity cost rate. Typically I would recommend Option I and, as discussed in the Moody's article above, utilize an equity ratio more similar to the other electric utilities as well as the parent holding company. However, because Indiana case law does not permit modifying the utility's capital structure,[14] it is vital that the Commission's ROE determination reflect the downward impact of the reduced financial risk inherent in NIPSCO's proposed capital structure.

Q. PLEASE ELABORATE ON THIS "DOWNWARD IMPACT."

[14] See *Pub. Service Comm 'n of Ind* v. *Ind Bell Tel. Co.,* 235 Ind. 1, 130 N.E.2d 467 (Ind. 1955); *Public Service Commission of Indiana* v. *City of Indianapolis,* Ind. 70, 131 N.E.2d 308 (Ind. *1956).*

1 A. As I stated earlier, there is a direct correlation between the amount of debt in a
2 utility's capital structure and the financial risk that an equity investor will associate
3 with that utility. A relatively lower proportion of debt translates into a lower required
4 return on equity, all other things being equal. Stated differently, a utility cannot
5 expect to "have it both ways." Specifically, a utility cannot maintain an unusually
6 high equity ratio and not expect to have the resulting lower risk reflected in its
7 authorized return on equity. The fundamental relationship between the lower risk and
8 the appropriate authorized return should not be ignored.
9
10 **VI. THE COST OF COMMON EQUITY CAPITAL**
11 **A. Overview**
12 **Q. WHY MUST AN OVERALL COST OF CAPITAL OR FAIR RATE OF**
13 **RETURN BE ESTABLISHED FOR A PUBLIC UTILITY?**
14 A. In a competitive industry, the return on a firm's common equity capital is determined
15 through the competitive market for its goods and services. Due to the capital
16 requirements needed to provide utility services and the economic benefit to society
17 from avoiding duplication of these services, some public utilities are monopolies.
18 Because of the lack of competition and the essential nature of their services, it is not
19 appropriate to permit monopoly utilities to set their own prices. Thus, regulation
20 seeks to establish prices that are fair to consumers and, at the same time, sufficient to
21 meet the operating and capital costs of the utility (i.e., provide an adequate return on

capital to attract investors).

Q. PLEASE PROVIDE AN OVERVIEW OF THE COST OF CAPITAL IN THE CONTEXT OF THE THEORY OF THE FIRM.

A. The total cost of operating a business includes the cost of capital. The cost of common equity capital is the expected return on a firm's common stock that the marginal investor would deem sufficient to compensate for risk and the time value of money. In equilibrium, the expected and required rates of return on a company's common stock are equal.

Normative economic models of a company or firm, developed under very restrictive assumptions, provide insight into the relationship between firm performance or profitability, capital costs, and the value of the firm. Under the economist's ideal model of perfect competition, where entry and exit are costless, products are undifferentiated, and there are increasing marginal costs of production, firms produce up to the point where price equals marginal cost. Over time, a long-run equilibrium is established where price equals average cost, including the firm's capital costs. In equilibrium, total revenues equal total costs, and because capital costs represent investors' required return on the firm's capital, actual returns equal required returns, and the market value must equal the book value of the firm's securities.

In the real world, firms can achieve competitive advantage due to product market imperfections. Most notably, companies can gain competitive advantage through product differentiation (adding real or perceived value to products) and by achieving economies of scale (decreasing marginal costs of production). Competitive advantage allows firms to price products above average cost and thereby earn accounting profits greater than those required to cover capital costs. When these profits are in excess of that required by investors, or when a firm earns a return on equity in excess of its cost of equity, investors respond by valuing the firm's equity in excess of its book value.

James M. McTaggart, founder of the international management consulting firm Marakon Associates, described this essential relationship between the return on equity, the cost of equity, and the market-to-book ratio in the following manner:[15]

> Fundamentally, the value of a company is determined by the cash flow it generates over time for its owners, and the minimum acceptable rate of return required by capital investors. This "cost of equity capital" is used to discount the expected equity cash flow, converting it to a present value. The cash flow is, in turn, produced by the interaction of a company's return on equity and the annual rate of equity growth. High return on equity (ROE) companies in low-growth markets, such as Kellogg, are prodigious generators of cash flow, while low ROE companies in high-growth markets, such as Texas Instruments, barely generate enough cash flow to finance growth.
>
> A company's ROE over time, relative to its cost of equity, also determines whether it is worth more or less than its book value. If its ROE is consistently greater than the cost of equity capital (the

[15] James M. McTaggart, "The Ultimate Poison Pill: Closing the Value Gap," *Commentary* (Spring 1986), p.3.

> investor's minimum acceptable return), the business is economically profitable and its market value will exceed book value. If, however, the business earns an ROE consistently less than its cost of equity, it is economically unprofitable and its market value will be less than book value.

As such, the relationship between a firm's return on equity, cost of equity, and market-to-book ratio is relatively straightforward. A firm that earns a return on equity above its cost of equity will see its common stock sell at a price above its book value. Conversely, a firm that earns a return on equity below its cost of equity will see its common stock sell at a price below its book value.

Q. PLEASE PROVIDE ADDITIONAL INSIGHTS INTO THE RELATIONSHIP BETWEEN ROE AND MARKET-TO-BOOK RATIOS.

A. This relationship is discussed in a classic Harvard Business School case study entitled "Note on Value Drivers." On page 2 of that case study, the author describes the relationship very succinctly:[16]

> For a given industry, more profitable firms – those able to generate higher returns per dollar of equity– should have higher market-to-book ratios. Conversely, firms which are unable to generate returns in excess of their cost of equity should sell for less than book value.

Profitability	*Value*
If ROE > K	*then Market/Book > 1*
If ROE = K	*then Market/Book =1*
If ROE < K	*then Market/Book < 1*

[16] Benjamin Esty, "Note on Value Drivers," Harvard Business School, Case No. 9-297-082, April 7, 1997.

To assess the relationship by industry, as suggested above, I performed a regression study between estimated ROE and market-to-book ratios using natural gas distribution, electric utility, and water utility companies. I used all companies in these three industries that are covered by *Value Line* and have estimated ROE and market-to-book ratio data. The results are presented in Panels A-C of Exhibit JRW-6. The average R-squares for the electric, gas, and water companies are 0.78, 0.63, and 0.49, respectively.[17] This demonstrates the strong positive relationship between ROEs and market-to-book ratios for public utilities.

Q. WHAT ECONOMIC FACTORS HAVE AFFECTED THE COST OF EQUITY CAPITAL FOR PUBLIC UTILITIES?

A. Exhibit JRW-7 provides indicators of public utility equity cost rates over the past decade.

Page 1 shows the yields on long-term A-rated public utility bonds. These yields decreased from 2000 until 2003, and then hovered in the 5.50%-6.50% range from mid-2003 until mid-2008. These yields spiked up to the 7.75% range with the onset of the Great Recession financial crisis, and remained high and volatile until early 2009. These yields declined to below 4.0% in mid-2013, and then increased with interest rates in general to the 4.85% range as of late 2013. They subsequently

[17] R-square measures the percent of variation in one variable (e.g., market-to-book ratios) explained by another variable (e.g., expected ROE). R-squares vary between zero and 1.0, with values closer to 1.0 indicating a higher relationship between two variables.

declined to below 4.0% in the first quarter of 2015, but have increased with interest rates in general since that time.

Page 2 provides the dividend yields for electric utilities over the past decade. The dividend yields for this electric group have declined from the year 2000 to 2007, increased to 5.2% in 2009, and dropped to 3.80% in 2014.

Average earned returns on common equity and market-to-book ratios for the electric group are on page 3 of Exhibit JRW-7. Earned returns on common equity have declined gradually since the year 2000 and have been in the 9.50% range in recent years. The average market-to-book ratios for this group peaked at 1.68X in 2007, declined to 1.07X in 2009, and have increased since that time. As of 2014, the average market-to-book for the group was 1.50X.

Q. WHAT FACTORS DETERMINE INVESTORS' EXPECTED OR REQUIRED RATE OF RETURN ON EQUITY?

A. The expected or required rate of return on common stock is a function of market-wide as well as company-specific factors. The most important market factor is the time value of money as indicated by the level of interest rates in the economy. Common stock investor requirements generally increase and decrease with like changes in interest rates. The perceived risk of a firm is the predominant factor that influences investor return requirements on a company-specific basis. A firm's investment risk is often separated into business and financial risk. Business risk encompasses all factors

that affect a firm's operating revenues and expenses. Financial risk results from incurring fixed obligations in the form of debt in financing its assets.

Q. HOW DOES THE INVESTMENT RISK OF UTILITIES COMPARE WITH THAT OF OTHER INDUSTRIES?

A. Due to the essential nature of their service as well as their regulated status, public utilities are exposed to a lesser degree of business risk than other, non-regulated businesses. The relatively low level of business risk allows public utilities to meet much of their capital requirements through borrowing in the financial markets, thereby incurring greater than average financial risk. Nonetheless, the overall investment risk of public utilities is below most other industries.

Exhibit JRW-8 provides an assessment of investment risk for 97 industries as measured by beta, which according to modern capital market theory, is the only relevant measure of investment risk. These betas come from the *Value Line Investment Survey.* The study shows that the investment risk of utilities is very low. The average betas for electric, water, and gas utility companies are 0.74, 0.73, and 0.80, respectively. As such, the cost of equity for utilities is among the lowest of all industries in the U.S.

Q. WHAT IS THE COST OF COMMON EQUITY CAPITAL?

A. The costs of debt and preferred stock are normally based on historical or book values and can be determined with a great degree of accuracy. The cost of common equity

capital, however, cannot be determined precisely and must instead be estimated from market data and informed judgment. This return requirement of the stockholder should be commensurate with the return requirement on investments in other enterprises having comparable risks.

According to valuation principles, the present value of an asset equals the discounted value of its expected future cash flows. Investors discount these expected cash flows at their required rate of return that, as noted above, reflects the time value of money and the perceived riskiness of the expected future cash flows. As such, the cost of common equity is the rate at which investors discount expected cash flows associated with common stock ownership.

Q. HOW CAN THE EXPECTED OR REQUIRED RATE OF RETURN ON COMMON EQUITY CAPITAL BE DETERMINED?

A. Models have been developed to ascertain the cost of common equity capital for a firm. Each model, however, has been developed using restrictive economic assumptions. Consequently, judgment is required in selecting appropriate financial valuation models to estimate a firm's cost of common equity capital, in determining the data inputs for these models, and in interpreting the models' results. All of these decisions must take into consideration the firm involved as well as current conditions in the economy and the financial markets.

1 **Q. HOW DO YOU PLAN TO ESTIMATE THE COST OF EQUITY CAPITAL**
2 **FOR NIPSCO?**
3 A. I rely primarily on the discounted cash flow ("DCF") model to estimate the cost of
4 equity capital. Given the investment valuation process and the relative stability of the
5 utility business, I believe that the DCF model provides the best measure of equity cost
6 rates for public utilities. It is my understanding that this Commission has traditionally
7 relied on the DCF model. I have also performed a capital asset pricing model
8 ("CAPM") study; however, I give these results less weight because I believe that risk
9 premium studies, of which the CAPM is one form, provide a less reliable indication
10 of equity cost rates for public utilities.
11
12 **B. DCF Analysis**
13
14 **Q. PLEASE DESCRIBE THE THEORY BEHIND THE TRADITIONAL DCF**
15 **MODEL.**
16 A. According to the DCF model, the current stock price is equal to the discounted value
17 of all future dividends that investors expect to receive from investment in the firm.
18 As such, stockholders' returns ultimately result from current as well as future
19 dividends. As owners of a corporation, common stockholders are entitled to a *pro*

rata share of the firm's earnings. The DCF model presumes that earnings that are not paid out in the form of dividends are reinvested in the firm so as to provide for future growth in earnings and dividends. The rate at which investors discount future dividends, which reflects the timing and riskiness of the expected cash flows, is interpreted as the market's expected or required return on the common stock. Therefore, this discount rate represents the cost of common equity. Algebraically, the DCF model can be expressed as:

$$P = \frac{D_1}{(1+k)^1} + \frac{D_2}{(1+k)^2} + \ldots \frac{D_n}{(1+k)^n}$$

where P is the current stock price, D_n is the dividend in year n, and k is the cost of common equity.

Q. IS THE DCF MODEL CONSISTENT WITH VALUATION TECHNIQUES EMPLOYED BY INVESTMENT FIRMS?

A. Yes. Virtually all investment firms use some form of the DCF model as a valuation technique. One common application for investment firms is called the three-stage DCF or dividend discount model ("DDM"). The stages in a three-stage DCF model are presented in Exhibit JRW-9, Page 1 of 2. This model presumes that a company's dividend payout progresses initially through a growth stage, then proceeds through a transition stage, and finally assumes a maturity (or steady-state) stage. The dividend-payment stage of a firm depends on the profitability of its internal investments which, in turn, is largely a function of the life cycle of the product or service.

1. Growth stage: Characterized by rapidly expanding sales, high profit margins, and an abnormally high growth in earnings per share. Because of highly profitable expected investment opportunities, the payout ratio is low. Competitors are attracted by the unusually high earnings, leading to a decline in the growth rate.

2. Transition stage: In later years, increased competition reduces profit margins and earnings growth slows. With fewer new investment opportunities, the company begins to pay out a larger percentage of earnings.

3. Maturity (steady-state) stage: Eventually, the company reaches a position where its new investment opportunities offer, on average, only slightly attractive ROEs. At that time, its earnings growth rate, payout ratio, and ROE stabilize for the remainder of its life. The constant-growth DCF model is appropriate when a firm is in the maturity stage of the life cycle.

In using this model to estimate a firm's cost of equity capital, dividends are projected into the future using the different growth rates in the alternative stages, and then the equity cost rate is the discount rate that equates the present value of the future dividends to the current stock price.

Q. HOW DO YOU ESTIMATE STOCKHOLDERS' EXPECTED OR REQUIRED RATE OF RETURN USING THE DCF MODEL?

A. Under certain assumptions, including a constant and infinite expected growth rate, and constant dividend/earnings and price/earnings ratios, the DCF model can be simplified to the following:

$$P = \frac{D_1}{k - g}$$

where D_1 represents the expected dividend over the coming year and g is the expected growth rate of dividends. This is known as the constant-growth version of the DCF model. To use the constant-growth DCF model to estimate a firm's cost of equity, one solves for k in the above expression to obtain the following:

$$k = \frac{D_1}{P} + g$$

Q. IN YOUR OPINION, IS THE CONSTANT-GROWTH DCF MODEL APPROPRIATE FOR PUBLIC UTILITIES?

A. Yes. The economics of the public utility business indicate that the industry is in the steady-state or constant-growth stage of a three-stage DCF. The economics include the relative stability of the utility business, the maturity of the demand for public utility services, and the regulated status of public utilities (especially the fact that their returns on investment are effectively set through the ratemaking process). The DCF valuation procedure for companies in this stage is the constant-growth DCF. In the constant-growth version of the DCF model, the current dividend payment and stock

price are directly observable. However, the primary problem and controversy in applying the DCF model to estimate equity cost rates entails estimating investors' expected dividend growth rate.

Q. WHAT FACTORS SHOULD ONE CONSIDER WHEN APPLYING THE DCF METHODOLOGY?

A. One should be sensitive to several factors when using the DCF model to estimate a firm's cost of equity capital. In general, one must recognize the assumptions under which the DCF model was developed in estimating its components (the dividend yield and the expected growth rate). The dividend yield can be measured precisely at any point in time; however, it tends to vary somewhat over time. Estimation of expected growth is considerably more difficult. One must consider recent firm performance, in conjunction with current economic developments and other information available to investors, to accurately estimate investors' expectations.

Q. WHAT DIVIDEND YIELDS HAVE YOU REVIEWED?

A. I have calculated the dividend yields for the companies in the proxy group using the current annual dividend and the 30-day, 90-day, and 180-day average stock prices. These dividend yields are provided in Panel A of page 2 of Exhibit JRW-10. For the Electric Proxy Group, the median dividend yields using the 30-day, 90-day, and 180-day average stock prices range from 3.6% to 3.8%. I am using the average of the

medians - 3.75% - as the dividend yield for the Electric Proxy Group. The dividend yields for the Moul Proxy Group are shown in Panel B of page 2 of Exhibit JRW-10. The median dividend yields range from 3.7% to 3.8% using the 30-day, 90-day, and 180-day average stock prices. I use the average of the medians – 3.70% - as the dividend yield for the Moul Proxy Group.

Q. PLEASE DISCUSS THE APPROPRIATE ADJUSTMENT TO THE SPOT DIVIDEND YIELD.

A. According to the traditional DCF model, the dividend yield term relates to the dividend yield over the coming period. As indicated by Professor Myron Gordon, who is commonly associated with the development of the DCF model for popular use, this is obtained by: (1) multiplying the expected dividend over the coming quarter by 4, and (2) dividing this dividend by the current stock price to determine the appropriate dividend yield for a firm that pays dividends on a quarterly basis.[18]

In applying the DCF model, some analysts adjust the current dividend for growth over the coming year as opposed to the coming quarter. This can be complicated because firms tend to announce changes in dividends at different times during the year. As such, the dividend yield computed based on presumed growth over the coming quarter as opposed to the coming year can be quite different.

[18] *Petition for Modification of Prescribed Rate of Return,* Federal Communications Commission, Docket No. 79-05, Direct Testimony of Myron J. Gordon and Lawrence I. Gould at 62 (April 1980).

Consequently, it is common for analysts to adjust the dividend yield by some fraction of the long-term expected growth rate.

Q. GIVEN THIS DISCUSSION, WHAT ADJUSTMENT FACTOR DO YOU USE FOR YOUR DIVIDEND YIELD?

A. I adjust the dividend yield by one-half (1/2) of the expected growth so as to reflect growth over the coming year. The DCF equity cost rate ("K") is computed as:

$$K = [(D/P) * (1 + 0.5g)] + g$$

Q. PLEASE DISCUSS THE GROWTH RATE COMPONENT OF THE DCF MODEL.

A. There is much debate as to the proper methodology to employ in estimating the growth component of the DCF model. By definition, this component is investors' expectation of the long-term dividend growth rate. Presumably, investors use some combination of historical and/or projected growth rates for earnings and dividends per share and for internal or book-value growth to assess long-term potential.

Q. WHAT GROWTH DATA HAVE YOU REVIEWED FOR THE PROXY GROUPS?

A. I have analyzed a number of measures of growth for companies in the proxy groups. I reviewed *Value Line's* historical and projected growth rate estimates for earnings

per share ("EPS"), dividends per share ("DPS"), and book value per share ("BVPS"). In addition, I utilized the average EPS growth rate forecasts of Wall Street analysts as provided by Yahoo, Reuters and Zacks. These services solicit five-year earnings growth rate projections from securities analysts and compile and publish the means and medians of these forecasts. Finally, I also assessed prospective growth as measured by prospective earnings retention rates and earned returns on common equity.

Q. PLEASE DISCUSS HISTORICAL GROWTH IN EARNINGS AND DIVIDENDS AS WELL AS INTERNAL GROWTH.

A. Historical growth rates for EPS, DPS, and BVPS are readily available to investors and are presumably an important ingredient in forming expectations concerning future growth. However, one must use historical growth numbers as measures of investors' expectations with caution. In some cases, past growth may not reflect future growth potential. Also, employing a single growth rate number (for example, for five or ten years) is unlikely to accurately measure investors' expectations, due to the sensitivity of a single growth rate figure to fluctuations in individual firm performance as well as overall economic fluctuations (i.e., business cycles). However, one must appraise the context in which the growth rate is being employed. According to the conventional DCF model, the expected return on a security is equal to the sum of the dividend yield and the expected long-term growth in dividends.

1 Therefore, to best estimate the cost of common equity capital using the conventional
2 DCF model, one must look to long-term growth rate expectations.
3 Internally generated growth is a function of the percentage of earnings
4 retained within the firm (the earnings retention rate) and the rate of return earned on
5 those earnings (the return on equity). The internal growth rate is computed as the
6 retention rate times the return on equity. Internal growth is significant in determining
7 long-run earnings and, therefore, dividends. Investors recognize the importance of
8 internally generated growth and pay premiums for stocks of companies that retain
9 earnings and earn high returns on internal investments.
10
11 **Q. PLEASE DISCUSS THE SERVICES THAT PROVIDE ANALYSTS' EPS**
12 **FORECASTS.**
13 A. Analysts' EPS forecasts for companies are collected and published by a number of
14 different investment information services, including Institutional Brokers Estimate
15 System ("I/B/E/S"), Bloomberg, FactSet, Zacks, First Call and Reuters, among others.
16 Thompson Reuters publishes analysts' EPS forecasts under different product names,
17 including I/B/E/S, First Call, and Reuters. Bloomberg, FactSet, and Zacks publish their
18 own set of analysts' EPS forecasts for companies. These services do not reveal: (1) the
19 analysts who are solicited for forecasts; or (2) the identity of the analysts who actually
20 provide the EPS forecasts that are used in the compilations published by the services.
21 I/B/E/S, Bloomberg, FactSet, and First Call are fee-based services. These services

usually provide detailed reports and other data in addition to analysts' EPS forecasts. Thompson Reuters and Zacks do provide limited EPS forecast data free-of-charge on the internet. Yahoo finance (http://finance.yahoo.com) lists Thompson Reuters as the source of its summary EPS forecasts. The Reuters website (www.reuters.com) also publishes EPS forecasts from Thompson Reuters, but with more detail. Zacks (www.zacks.com) publishes its summary forecasts on its website. Zacks estimates are also available on other websites, such as msn.money (http://money.msn.com).

Q. PLEASE PROVIDE AN EXAMPLE OF THESE EPS FORECASTS.

A. The following example provides the EPS forecasts compiled by Reuters for Alliant Energy Corp. (stock symbol "LNT"). The figures are provided on page 2 of Exhibit JRW-9. Line one shows that one analyst has provided EPS estimates for the quarter ending March 31, 2016. The mean, high and low estimates are $0.93, $0.93, and $0.93, respectively. The second line shows the quarterly EPS estimates for the quarter ending June 30, 2016 of $0.53 (mean), $0.53 (high), and $0.53 (low). Line three shows the annual EPS estimates for the fiscal year ending December 2016 ($3.78 (mean), $3.63 (high), and $3.75 (low). The quarterly and annual EPS forecasts in lines 1-3 are expressed in dollars and cents. As in the LNT case shown here, it is common for more analysts to provide estimates of annual EPS as opposed to quarterly EPS. The bottom line shows the projected long-term EPS growth rate, which is expressed as a percentage. For LNT, two analysts have provided a long-

term EPS growth rate forecast, with mean, high, and low growth rates of 5.55%, 6.00%, and 5.10%.

Q. WHICH OF THESE EPS FORECASTS IS USED BY ANALYSTS IN DEVELOPING A LONG-TERM DCF GROWTH RATE?

A. The DCF growth rate is the long-term projected growth rate in EPS, DPS, and BVPS. Therefore, in developing an equity cost rate using the DCF model, the projected long-term growth rate is the projection used in the DCF model.

Q. WHY DO YOU NOT RELY EXCLUSIVELY ON THE EPS FORECASTS OF WALL STREET ANALYSTS TO ARRIVE AT A DCF GROWTH RATE FOR THE PROXY GROUP?

A. There are several issues with using the EPS growth rate forecasts of Wall Street analysts as DCF growth rates. First, the appropriate growth rate in the DCF model is the dividend growth rate, not the earnings growth rate. Nonetheless, over the very long term, dividend and earnings will have to grow at a similar growth rate. Therefore, consideration must be given to other indicators of growth, including prospective dividend growth, internal growth, as well as projected earnings growth. Second, a recent study by Lacina, Lee, and Xu (2011) has shown that analysts' long-term earnings growth rate forecasts are not more accurate at forecasting future

1 earnings than naïve random walk forecasts of future earnings.[19] Employing data over
2 a twenty-year period, these authors demonstrate that using the most recent year's EPS
3 figure to forecast EPS in the next 3-5 years proved to be just as accurate as using the
4 EPS estimates from analysts' long-term earnings growth rate forecasts. In the
5 authors' opinion, these results indicate that analysts' long-term earnings growth rate
6 forecasts should be used with caution as inputs for valuation and cost of capital
7 purposes. Finally, and most significantly, it is well understood that the long-term
8 EPS growth rate forecasts of Wall Street securities analysts are overly optimistic and
9 upwardly biased. This has been demonstrated in a number of academic studies over
10 the years.[20] Hence, using these growth rates as a DCF growth rate provides an
11 overstated equity cost rate. On this issue, a study by Easton and Sommers (2007)
12 found that optimism in analysts' growth rate forecasts leads to an upward bias in
13 estimates of the cost of equity capital of almost 3.0 percentage points.[21]

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[19] M. Lacina, B. Lee & Z. Xu, *Advances in Business and Management Forecasting (Vol. 8),* Kenneth D. Lawrence, Ronald K. Klimberg (ed.), Emerald Group Publishing Limited, pp.77-101.

[20] The studies that demonstrate analysts' long-term EPS forecasts are overly-optimistic and upwardly biased include: R.D. Harris, "The Accuracy, Bias, and Efficiency of Analysts' Long Run Earnings Growth Forecasts," *Journal of Business Finance & Accounting*, pp. 725-55 (June/July 1999); P. DeChow, A. Hutton, and R. Sloan, "The Relation Between Analysts' Forecasts of Long-Term Earnings Growth and Stock Price Performance Following Equity Offerings," *Contemporary Accounting Research (2000);* K. Chan, L., Karceski, J., & Lakonishok, J., "The Level and Persistence of Growth Rates," *Journal of Finance* pp. 643–684, (2003); M. Lacina, B. Lee and Z. Xu, *Advances in Business and Management Forecasting (Vol. 8),* Kenneth D. Lawrence, Ronald K. Klimberg (ed.), Emerald Group Publishing Limited, pp.77-101; and Marc H. Goedhart, Rishi Raj, and Abhishek Saxena, "Equity Analysts, Still Too Bullish," *McKinsey on Finance*, pp. 14-17, (Spring 2010).

[21] Peter D. Easton & Gregory A. Sommers, *Effect of Analysts' Optimism on Estimates of the Expected Rate of Return Implied by Earnings Forecasts*, 45 J. ACCT. RES. 983–1015 (2007).

1 **Q. IS IT YOUR OPINION THAT STOCK PRICES REFLECT THE UPWARD**
2 **BIAS IN THE EPS GROWTH RATE FORECASTS?**
3 A. Yes, I believe investors are well aware of the bias in analysts' EPS growth rate
4 forecasts, and therefore stock prices reflect the upward bias.
5
6 **Q. HOW DOES THAT AFFECT THE USE OF THESE FORECASTS IN A DCF**
7 **EQUITY COST RATE STUDY?**
8 A. According to the DCF model, the equity cost rate is a function of the dividend yield and
9 expected growth rate. Because stock prices reflect the bias, it would affect the dividend
10 yield. In addition, the DCF growth rate needs to be adjusted downward from the
11 projected EPS growth rate to reflect the upward bias.
12
13 **Q. PLEASE DISCUSS THE HISTORICAL GROWTH OF THE COMPANIES IN**
14 **THE PROXY GROUPS, AS PROVIDED BY *VALUE LINE.***
15 A. Page 3 of Exhibit JRW-10 provides the 5- and 10-year historical growth rates for
16 EPS, DPS, and BVPS for the companies in the three proxy groups, as published in the
17 *Value Line Investment Survey.* The median historical growth measures for EPS, DPS,
18 and BVPS for my Electric Proxy Group, as provided in Panel A, range from 2.5% to
19 6.5%, with an average of the medians of 4.3%. For Mr. Moul's Proxy Group, as
20 shown in Panel B of page 3 of Exhibit JRW-10, the historical growth measures in

EPS, DPS, and BVPS, as measured by the medians, range from 2.3% to 6.5%, with an average of the medians of 4.3%.

Q. PLEASE SUMMARIZE *VALUE LINE'S* PROJECTED GROWTH RATES FOR THE COMPANIES IN THE PROXY GROUPS.

A. *Value Line's* projections of EPS, DPS, and BVPS growth for the companies in the proxy groups are shown on page 4 of Exhibit JRW-10. As stated above, due to the presence of outliers, the medians are used in the analysis. For my Electric Proxy Group, as shown in Panel A of page 4 of Exhibit JRW-10, the medians range from 4.0% to 6.0%, with an average of the medians of 5.0%. The range of the medians for the Moul Proxy Group, shown in Panel B of page 4 of Exhibit JRW-10, is from 4.5% to 6.0%, with an average of the medians of 5.2%.

Also provided on page 4 of Exhibit JRW-10 are the prospective sustainable growth rates for the companies in the two proxy groups as measured by *Value Line*'s average projected retention rate and return on shareholders' equity. As noted above, sustainable growth is a significant and a primary driver of long-run earnings growth. For the Electric and Moul Proxy Groups, the median prospective sustainable growth rates are 4.3% and 4.3%, respectively.

1 **Q. PLEASE ASSESS GROWTH FOR THE PROXY GROUPS AS MEASURED**
2 **BY ANALYSTS' FORECASTS OF EXPECTED 5-YEAR EPS GROWTH.**
3 A. Yahoo, Zacks, and Reuters collect, summarize, and publish Wall Street analysts'
4 long-term EPS growth rate forecasts for the companies in the proxy groups. These
5 forecasts are provided for the companies in the proxy groups on page 5 of Exhibit
6 JRW-10. I have reported both the mean and median growth rates for the groups.
7 Since there is considerable overlap in analyst coverage between the three services, and
8 not all of the companies have forecasts from the different services, I have averaged the
9 expected five-year EPS growth rates from the three services for each company to arrive
10 at an expected EPS growth rate for each company. The mean/median of analysts'
11 projected EPS growth rates for the Electric and Moul Proxy Groups are 4.6%/5.0%
12 and 4.6%/5.2%, respectively.[22]
13
14 **Q. PLEASE SUMMARIZE YOUR ANALYSIS OF THE HISTORICAL AND**
15 **PROSPECTIVE GROWTH OF THE PROXY GROUPS.**
16 A. Page 6 of Exhibit JRW-10 shows the summary DCF growth rate indicators for the
17 proxy groups.
18 The historical growth rate indicators for my Electric Proxy Group imply a
19 baseline growth rate of 4.3%. The average of the projected EPS, DPS, and BVPS
20 growth rates from *Value Line* is 5.0%, and *Value Line*'s projected sustainable growth

[22] Given variation in the measures of central tendency of analysts' projected EPS growth rates proxy groups, I have considered both the means and medians figures in the growth rate analysis.

rate is 4.3%. The mean and median of the projected EPS growth rates of Wall Street analysts for the Electric Proxy Group are 4.6% and 5.0% as measured by the. The overall range for the projected growth rate indicators (ignoring historical growth) is 4.3% to 5.0%. Giving primary weight to the projected EPS growth rate of Wall Street analysts, I believe that the appropriate projected growth rate range is 4.75% to 5.0%. I will use the midpoint of this range, 4.875%, as the DCF growth rate for my Electric Proxy Group. This growth rate figure is in the upper end of the range of historical and projected growth rates for the Electric Proxy Group.

For the Moul Proxy Group, the historical growth rate indicators indicate a growth rate of 4.3%. The average of the projected EPS, DPS, and BVPS growth rates from *Value Line* is 5.2%, and *Value Line*'s projected sustainable growth rate is 4.3%. The projected EPS growth rates of Wall Street analysts are 4.6% and 5.2% as measured by the mean and median growth rates. The overall range for the projected growth rate indicators is 4.3% to 5.2%. Again giving primary weight to the projected EPS growth rate of Wall Street analysts, I believe that the appropriate projected growth rate for the Moul Proxy Group is 5.0%.

Q. BASED ON THE ABOVE ANALYSIS, WHAT ARE YOUR INDICATED COMMON EQUITY COST RATES FROM THE DCF MODEL FOR THE PROXY GROUPS?

A. My DCF-derived equity cost rates for the groups are summarized on page 1 of

Exhibit JRW-10 and in Table 2 below.

Table 2: DCF-Derived Equity Cost Rate/ROE

	Dividend Yield	1 + ½ Growth Adjustment	DCF Growth Rate	Equity Cost Rate
Electric Proxy Group	**3.75%**	**1.024375**	**4.875%**	**8.70%**
Moul Proxy Group	**3.70%**	**1.024375**	**5.000%**	**8.80%**

The result for my Electric Proxy Group is the 3.75% dividend yield, times the one and one-half growth adjustment of 1.024375, plus the DCF growth rate of 4.875%, which results in an equity cost rate of 8.70%. The result for the Moul Proxy Group is 8.80% which includes a dividend yield of 3.70%, an adjustment factor of 1.02500, and a DCF growth rate of 5.00%.

C. Capital Asset Pricing Model

Q. PLEASE DISCUSS THE CAPITAL ASSET PRICING MODEL ("CAPM").

A. The CAPM is a risk premium approach to gauging a firm's cost of equity capital. According to the risk premium approach, the cost of equity is the sum of the interest rate on a risk-free bond (R_f) and a risk premium (RP), as in the following:

$$k = R_f + RP$$

The yield on long-term U.S. Treasury securities is normally used as R_f. Risk premiums are measured in different ways. The CAPM is a theory of the risk and expected returns of common stocks. In the CAPM, two types of risk are associated with a stock: firm-specific risk or unsystematic risk, and market or systematic risk, which is measured by a firm's beta. The only risk that investors receive a return for bearing is systematic risk.

According to the CAPM, the expected return on a company's stock, which is also the equity cost rate (K), is equal to:

$$K = (R_f) + ß * [E(R_m) - (R_f)]$$

Where:

- K represents the estimated rate of return on the stock;
- $E(R_m)$ represents the expected return on the overall stock market. Frequently, the 'market' refers to the S&P 500;
- (R_f) represents the risk-free rate of interest;
- $[E(R_m) - (R_f)]$ represents the expected equity or market risk premium—the excess return that an investor expects to receive above the risk-free rate for investing in risky stocks; and
- *Beta*—(ß) is a measure of the systematic risk of an asset.

To estimate the required return or cost of equity using the CAPM requires three inputs: the risk-free rate of interest (R_f), beta (ß), and the expected equity or market risk premium $[E(R_m) - (R_f)]$. R_f is the easiest of the inputs to measure – it is represented by the yield on long-term U.S. Treasury bonds. ß, the measure of systematic risk, is a little more difficult to measure because there are different opinions about what adjustments, if any, should be made to historical betas due to

their tendency to regress to 1.0 over time. And finally, an even more difficult input to measure is the expected equity or market risk premium ($E(R_m)$ - (R_f)). I will discuss each of these inputs below.

Q. PLEASE DISCUSS EXHIBIT JRW-11.

A. Exhibit JRW-11 provides the summary results for my CAPM study. Page 1 shows the results, and the following pages contain the supporting data.

Q. PLEASE DISCUSS THE RISK-FREE INTEREST RATE.

A. The yield on long-term U.S. Treasury bonds has usually been viewed as the risk-free rate of interest in the CAPM. The yield on long-term U.S. Treasury bonds, in turn, has been considered to be the yield on U.S. Treasury bonds with 30-year maturities.

Q. WHAT RISK-FREE INTEREST RATE ARE YOU USING IN YOUR CAPM?

A. As shown on page 2 of Exhibit JRW-11, the yield on 30-year U.S. Treasury bonds has been in the 2.5% to 4.0% range over the 2013–2015 time period. The 30-year Treasury yield is currently in the middle of this range. Given the recent range of yields and the possibility of higher interest rates, I use 4.0% as the risk-free rate, or R_f, in my CAPM.

1 **Q. WHAT BETAS ARE YOU EMPLOYING IN YOUR CAPM?**

2 A. Beta (ß) is a measure of the systematic risk of a stock. The market, usually taken to
3 be the S&P 500, has a beta of 1.0. The beta of a stock with the same price movement
4 as the market also has a beta of 1.0. A stock whose price movement is greater than
5 that of the market, such as a technology stock, is riskier than the market and has a
6 beta greater than 1.0. A stock with below average price movement, such as that of a
7 regulated public utility, is less risky than the market and has a beta less than 1.0.
8 Estimating a stock's beta involves running a linear regression of a stock's return on
9 the market return.

10 As shown on page 3 of Exhibit JRW-11, the slope of the regression line is the
11 stock's ß. A steeper line indicates that the stock is more sensitive to the return on the
12 overall market. This means that the stock has a higher ß and greater-than-average
13 market risk. A less steep line indicates a lower ß and less market risk.

14 Several online investment information services, such as Yahoo and Reuters,
15 provide estimates of stock betas. Usually these services report different betas for the
16 same stock. The differences are usually due to: (1) the time period over which ß is
17 measured; and (2) any adjustments that are made to reflect the fact that betas tend to
18 regress to 1.0 over time. In estimating an equity cost rate for the proxy groups, I am
19 using the betas for the companies as provided in the *Value Line Investment Survey*.
20 As shown on page 3 of Exhibit JRW-11, the median betas for the companies in my
21 Electric and Moul Proxy Groups are 0.75 and 0.75, respectively.

1 **Q. PLEASE DISCUSS THE MARKET RISK PREMIUM ("MRP").**

2 A. The MRP is equal to the expected return on the stock market (e.g., the expected return
3 on the S&P 500, $E(R_m)$ minus the risk-free rate of interest (R_f)). The MRP is the
4 difference in the expected total return between investing in equities and investing in
5 "safe" fixed-income assets, such as long-term government bonds. However, while
6 the MRP is easy to define conceptually, it is difficult to measure because it requires
7 an estimate of the expected return on the market - $E(R_m)$. As is discussed below, there
8 are different ways to measure $E(R_m)$, and studies have come up with significantly
9 different magnitudes for $E(R_m)$. As Merton Miller, the 1990 Nobel Prize winner in
10 economics indicated, $E(R_m)$ is very difficult to measure and is one of the great
11 mysteries in finance.[23]

12 **Q. PLEASE DISCUSS THE ALTERNATIVE APPROACHES TO ESTIMATING**
13 **THE MRP.**

14 A. Page 4 of Exhibit JRW-11 highlights the primary approaches to, and issues in,
15 estimating the expected MRP. The traditional way to measure the MRP was to use
16 the difference between historical average stock and bond returns. In this case,
17 historical stock and bond returns, also called ex post returns, were used as the
18 measures of the market's expected return (known as the *ex ante* or forward-looking

[23] Merton Miller, "The History of Finance: An Eyewitness Account," *Journal of Applied Corporate Finance*, 2000, P. 3.

1 expected return). This type of historical evaluation of stock and bond returns is often
2 called the "Ibbotson approach" after Professor Roger Ibbotson, who popularized this
3 method of using historical financial market returns as measures of expected returns.
4 Most historical assessments of the equity risk premium suggest an equity risk
5 premium range of 5% to 7% above the rate on long-term U.S. Treasury bonds.
6 However, this can be a problem because: (1) ex post returns are not the same as *ex*
7 *ante* expectations; (2) market risk premiums can change over time, increasing when
8 investors become more risk-averse and decreasing when investors become less risk-
9 averse; and (3) market conditions can change such that ex post historical returns are
10 poor estimates of *ex ante* expectations.

11 The use of historical returns as market expectations has been criticized in
12 numerous academic studies as discussed later in my testimony. The general theme of
13 these studies is that the large equity risk premium discovered in historical stock and
14 bond returns cannot be justified by the fundamental data. These studies, which fall
15 under the category "Ex Ante Models and Market Data," compute *ex ante* expected
16 returns using market data to arrive at an expected equity risk premium. These studies
17 have also been called "Puzzle Research" after the famous study by Mehra and
18 Prescott in which the authors first questioned the magnitude of historical equity risk
19 premiums relative to fundamentals.[24]

[24] Rajnish Mehra & Edward C. Prescott, "The Equity Premium: A Puzzle," *Journal of Monetary Economics,* 145 (1985).

1 In addition, there are a number of surveys of financial professionals regarding
2 the MRP. There have also been several published surveys of academics on the equity
3 risk premium. *CFO Magazine* conducts a quarterly survey of CFOs, which includes
4 questions regarding their views on the current expected returns on stocks and bonds.
5 Usually, almost 500 CFOs participate in the survey.[25] Questions regarding expected
6 stock and bond returns are also included in the Federal Reserve Bank of
7 Philadelphia's annual survey of financial forecasters, which is published as the *Survey*
8 *of Professional Forecasters.*[26] This survey of professional economists has been
9 published for almost fifty years. In addition, Pablo Fernandez conducts annual
10 surveys of financial analysts and companies regarding the equity risk premiums they
11 use in their investment and financial decision-making.[27]
12
13 **Q. PLEASE PROVIDE A SUMMARY OF THE MRP STUDIES.**
14 A. Derrig and Orr (2003), Fernandez (2007), and Song (2007) have completed the most
15 comprehensive reviews to date of the research on the MRP.[28] Derrig and Orr's study

[25] *See* DUKE/CFO MAGAZINE GLOBAL BUSINESS OUTLOOK SURVEY, www.cfosurvey.org December, 2015).
[26] Federal Reserve Bank of Philadelphia, *Survey of Professional Forecasters (Feb. 13, 2015).* The Survey of Professional Forecasters was formerly conducted by the American Statistical Association ("ASA") and the National Bureau of Economic Research ("NBER") and was known as the ASA/NBER survey. The survey, which began in 1968, is conducted each quarter. The Federal Reserve Bank of Philadelphia, in cooperation with the NBER, assumed responsibility for the survey in June 1990.
[27] Pablo Fernandez, Alberto Ortiz and Isabel Fernandez Acín, "Discount Rate (Risk-Free Rate and Market Risk Premium), used for 41 countries in 2015: a survey," April 23, 2015.
[28] *See* Richard Derrig & Elisha Orr, "Equity Risk Premium: Expectations Great and Small," Working Paper (version 3.0), Automobile Insurers Bureau of Massachusetts, (August 28, 2003); Pablo Fernandez, "Equity Premium: Historical, Expected, Required, and Implied," IESE Business School Working Paper, (2007); Zhiyi Song, "The Equity Risk Premium: An Annotated Bibliography," CFA Institute, (2007).

evaluated the various approaches to estimating MRPs, as well as the issues with the alternative approaches and summarized the findings of the published research on the MRP. Fernandez examined four alternative measures of the MRP – historical, expected, required, and implied. He also reviewed the major studies of the MRP and presented the summary MRP results. Song provides an annotated bibliography and highlights the alternative approaches to estimating the MRP.

Page 5 of Exhibit JRW-11 provides a summary of the results of the primary risk premium studies reviewed by Derrig and Orr, Fernandez, and Song, as well as other more recent studies of the MRP. In developing page 5 of Exhibit JRW-11, I have categorized the studies as discussed on page 4 of Exhibit JRW-11. I have also included the results of studies of the "Building Blocks" approach to estimating the equity risk premium. The Building Blocks approach is a hybrid approach employing elements of both historical and *ex ante* models.

Q. PLEASE DISCUSS PAGE 5 OF EXHIBIT JRW-11.

A. Page 5 of JRW-11 provides a summary of the results of the MRP studies that I have reviewed. These include the results of: (1) the various studies of the historical risk premium, (2) *ex ante* MRP studies, (3) MRP surveys of CFOs, financial forecasters, analysts, companies and academics, and (4) the Building Blocks approach to the MRP. There are results reported for over thirty studies, and the median MRP is 4.63%.

1 **Q. PLEASE HIGHLIGHT THE RESULTS OF THE MORE RECENT RISK**
2 **PREMIUM STUDIES AND SURVEYS.**
3 A. The studies cited on page 5 of Exhibit JRW-11 include every MRP study and survey I
4 could identify that was published over the past decade and that provided an MRP
5 estimate. Most of these studies were published prior to the financial crisis. In
6 addition, some of these studies were published in the early 2000s at the market peak.
7 It should be noted that many of these studies (as indicated) used data over long
8 periods of time (as long as fifty years of data) and so were not estimating an MRP as
9 of a specific point in time (e.g., the year 2001). To assess the effect of the earlier
10 studies on the MRP, I have reconstructed page 5 of Exhibit JRW-11 on page 6 of
11 Exhibit JRW-11; however, I have eliminated all studies dated before January 2, 2010.
12 The median for this subset of studies is 4.99%.
13
14 **Q. GIVEN THESE RESULTS, WHAT MRP ARE YOU USING IN YOUR CAPM?**
15 A. Much of the data indicates that the market risk premium is in the 4.0% to 6.0% range.
16 Several recent studies (such as Damodaran, American Appraisers, Duarte and Rosa,
17 and the CFO Survey have suggested an increase in the market risk premium.
18 Therefore, I will use 5.5%, which is in the upper end of the range, as the market risk
19 premium or MRP.

1 **Q. IS YOUR *EX ANTE* MRP CONSISTENT WITH THE MRPS USED BY**
2 **CFOS?**
3 A. Yes. In the December 2015 CFO survey conducted by *CFO Magazine* and Duke
4 University, which included about 450 responses, the expected 10-year MRP was
5 4.19%.[29]
6
7 **Q. IS YOUR *EX ANTE* MRP CONSISTENT WITH THE MRPS OF**
8 **PROFESSIONAL FORECASTERS?**
9 A. The financial forecasters in the previously referenced Federal Reserve Bank of
10 Philadelphia survey projected both stock and bond returns. In the February 2015
11 survey, the median long-term expected stock and bond returns were 5.79% and
12 3.91%, respectively. This provides an *ex ante* MRP of 1.88% (5.79%-3.91%).
13
14 **Q. IS YOUR *EX ANTE* MRP CONSISTENT WITH THE MRPS OF FINANCIAL**
15 **ANALYSTS AND COMPANIES?**
16 A. Yes. Pablo Fernandez published the results of his 2015 survey of academics,
17 financial analysts, and companies.[30] This survey included over 4,000 responses. The
18 median MRP employed by U.S. analysts and companies was 5.5%.
19

[29] *Id.* p. 67.
[30] *Ibid.* p. 3.

Q. WHAT EQUITY COST RATE IS INDICATED BY YOUR CAPM ANALYSIS?

A. The results of my CAPM study for the proxy groups are summarized on page 1 of Exhibit JRW-11 and in Table 3 below.

Table 3: CAPM-derived Equity Cost Rate/ROE

$$K = (R_f) + ß * [E(R_m) - (R_f)]$$

	Risk-Free Rate	Beta	Equity Risk Premium	Equity Cost Rate
Electric Proxy Group	**4.0%**	**0.75**	**5.5%**	**8.10%**
Moul Proxy Group	**4.0%**	**0.75**	**5.5%**	**8.10%**

For the Electric Proxy Group, the risk-free rate of 4.0% plus the product of the beta of 0.75 times the equity risk premium of 5.5% results in an 8.10% equity cost rate. For the Moul Proxy Group, the risk-free rate of 4.0% plus the product of the beta of 0.75 times the equity risk premium of 5.5% results in an 8.10% equity cost rate.

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D. Equity Cost Rate Summary

Q. PLEASE SUMMARIZE THE RESULTS OF YOUR EQUITY COST RATE STUDIES.

A. My DCF analyses for the Electric and Moul Proxy Groups indicate equity cost rates of 8.70% and 8.80%, respectively. The CAPM equity cost rates for the Electric and Moul Proxy Groups are 8.1% and 8.1% as shown in Table 4 below:

Table 4: ROEs Derived from DCF and CAPM Models

	DCF	CAPM
Electric Proxy Group	**8.70%**	**8.10%**
Moul Proxy Group	**8.80%**	**8.10%**

Q. GIVEN THESE RESULTS, WHAT IS YOUR ESTIMATED EQUITY COST RATE FOR THE GROUPS?

A. Given these results, I conclude that the appropriate equity cost rate for companies in the Electric and Moul Proxy Groups is in the 8.10% to 8.80% range. However, because I give more weight to the DCF model, I am using the upper end of the range as the equity cost rate. Therefore, I conclude that the appropriate equity cost rate for the Electric and Moul Proxy Groups is in the range of 8.70% to 8.80%. This recommendation gives primary weight to the DCF results for the Proxy Groups. Had I given more weight to my CAPM results, my ROE recommendation for NIPSCO would be lower.

Q. HOW DOES YOUR PREVIOUS DISCUSSION ON DOUBLE LEVERAGE AND CAPITAL STRUCTURE AFFECT YOUR COST OF EQUITY RECOMMENDATION FOR NIPSCO?

A. As previously discussed, the common equity ratio of NIPSCO is significantly above the median common equity ratios of 48.1% and 46.7% of the proxy groups. In addition, given the low common equity of NiSource, this is clearly a case of double

leverage as described by Moody's. Therefore, I suggest that the Commission explicitly recognize these factors and set the ROE for NIPSCO at my recommended 8.70%.

Q. PLEASE INDICATE WHY AN 8.70% RETURN ON EQUITY IS APPROPRIATE FOR PETITIONER AT THIS TIME.

A. There are a number of reasons why an 8.70% return on equity is appropriate and fair for the Company in this case:

1. As shown in Exhibits JRW-2 and JRW-3, capital costs for utilities, as indicated by long-term bond yields, are still at historically low levels. In addition, given low inflationary expectations and slow global economic growth, interest rates are likely to remain at low levels for some time.

2. As shown in Exhibit JRW-8, the electric utility industry is among the lowest risk industries in the U.S. as measured by beta. As such, the cost of equity capital for this industry is amongst the lowest in the U.S., according to the CAPM.

3. The investment risk of NIPSCO, as indicated by the Company's S&P and Moody's issuer credit ratings of BBB+ and Baa1, is in line with the average issuer credit ratings of the Electric Proxy Group.

4. The Company's proposed capital structure includes a common equity ratio of 58.44% which has much more equity and less financial risk than the electric utility companies in the proxy groups and NIPSCO's parent, NiSource; and

1 4. Authorized ROEs for electric utilities have gradually decreased in recent
2 years. These authorized ROEs for electric utilities have declined from 10.01% in
3 2012, to 9.8% in 2013, 9.76% in 2014, and 9.58% in 2015 according to Regulatory
4 Research Associates.[31] In my opinion, these authorized ROEs have lagged behind
5 capital market cost rates, or in other words, authorized ROEs have been slow to
6 reflect low capital market cost rates. This has been especially true in recent years as
7 some state commissions have been reluctant to authorize ROEs below 10%.
8 However, the trend has been towards lower ROEs, and the norm now is below ten
9 percent. Hence, I believe that my recommended ROE reflects our present historically
10 low capital cost rates, and these low capital cost rates are finally being recognized by
11 state utility commissions.
12
13 **Q. PLEASE DISCUSS YOUR RECOMMENDATION IN LIGHT OF A RECENT**
14 **MOODY'S PUBLICATION.**
15 A. Moody's recently published an article on utility ROEs and credit quality. In the
16 article, Moody's recognizes that authorized ROEs for electric and gas companies are
17 declining due to lower interest rates.[32]

18 The credit profiles of US regulated utilities will remain intact over
19 the next few years despite our expectation that regulators will
20 continue to trim the sector's profitability by lowering its authorized

[31] *Regulatory Focus*, Regulatory Research Associates, July, 2015. The electric utility authorized ROEs exclude the authorized ROEs in Virginia which include generation adders.
[32] Moody's Investors Service, "Lower Authorized Equity Returns Will Not Hurt Near-Term Credit Profiles," March 10, 2015.

> returns on equity (ROE). Persistently low interest rates and a comprehensive suite of cost recovery mechanisms ensure a low business risk profile for utilities, prompting regulators to scrutinize their profitability, which is defined as the ratio of net income to book equity. We view cash flow measures as a more important rating driver than authorized ROEs, and we note that regulators can lower authorized ROEs without hurting cash flow, for instance by targeting depreciation, or through special rate structures.

Moody's indicates that with the lower authorized ROEs, electric and gas companies are earning ROEs of 9.0% to 10.0%, but this is not impairing their credit profiles and is not deterring them from raising record amounts of capital. With respect to authorized ROEs, Moody's recognizes that utilities and regulatory commissions are having trouble justifying higher ROEs in the face of lower interest rates and cost recovery mechanisms.[33]

> Robust cost recovery mechanisms will help ensure that US regulated utilities' credit quality remains intact over the next few years. As a result, falling authorized ROEs are not a material credit driver at this time, but rather reflect regulators' struggle to justify the cost of capital gap between the industry's authorized ROEs and persistently low interest rates. We also see utilities struggling to defend this gap, while at the same time recovering the vast majority of their costs and investments through a variety of rate mechanisms.

Overall, this article establishes that lower authorized ROEs are unlikely to hurt the financial integrity of utilities or their ability to attract capital.

[33] *Ibid.*, p. 2.

1 **Q. DO YOU BELIEVE THAT YOUR 8.70% MEETS *HOPE* AND *BLUEFIELD***
2 **STANDARDS?**
3 A. Yes. As previously noted, according to the *Hope* and *Bluefield* decisions, returns on
4 capital should be: (1) comparable to returns investors expect to earn on other
5 investments of similar risk; (2) sufficient to assure confidence in the company's
6 financial integrity; and (3) adequate to maintain and support the company's credit and
7 to attract capital. While my recommendation is below the average authorized ROEs
8 for electric utility companies, it reflects the downward trend in authorized and earned
9 ROEs of electric utility companies. As is highlighted in the Moody's publication
10 cited above that states, despite authorized and earned ROEs below 10%, the credit
11 quality of electric and gas companies has not been impaired and, in fact, has
12 improved and utilities are raising about $50 billion per year in capital. Major
13 positive factors in the improved credit quality of utilities are regulatory ratemaking
14 mechanisms. Therefore, I do believe that my ROE recommendation meets the criteria
15 established in the *Hope* and *Bluefield* decisions.
16
17 **VI. <u>CRITIQUE OF NIPSCO'S RATE OF RETURN TESTIMONY</u>**
18 **Q. PLEASE SUMMARIZE MR. MOUL'S RATE OF RETURN**
19 **RECOMMENDATION FOR NIPSCO.**
20 A. The Company has proposed a capital structure from investor-provided capital 41.56%
21 long-term debt and 58.44% common equity. The Company recommended a long-

term debt cost rate of 5.71%. NIPSCO witness Mr. Paul R. Moul recommended a common equity cost rate of 10.70%. The Company's overall proposed rate of return from investor-provided capital is 8.65%. This is summarized in Exhibit JRW-12.

Q. WHAT ISSUES DO YOU HAVE WITH THE COMPANY'S COST OF CAPITAL POSITION?

A. The primary areas of disagreement in measuring NIPSCO's cost of capital are: (1) NIPSCO's proposed capital structure that includes a common equity ratio of 58.44%; (2) the DCF equity cost rate estimates, includes a DCF growth rate which is greater than the DCF growth rate indicators; (3) the base interest rate and market or equity risk premium in the RP and CAPM approaches which are overstated; (4) the use of the CE approach which is outdated and not market-oriented; and (5) the flotation cost and size adjustments to his equity cost rate estimates. The capital structure, RP and CE models, flotation costs and size issues were previously addressed in this testimony. The equity cost rate issues are discussed below.

A. <u>DCF Approach</u>

Q. PLEASE SUMMARIZE MR. MOUL'S DCF ESTIMATES.

A. At pages 26-41 of his testimony and in Schedule 5-8, Mr. Moul develops an equity cost rate by applying a DCF model to his group of electric companies. His DCF results are

summarized in Panel B of Exhibit JRW-13. In the traditional DCF approach, the equity cost rate is the sum of the dividend yield and expected growth. Mr. Moul adjusts the dividend yield to reflect the quarterly payment of dividends and an ex-dividend adjustment to the stock price. Mr. Moul reviews a number of historical and projected measures of expected growth for his DCF model. He uses the projected EPS growth rate forecasts from Zacks, Reuters, Morningstar, SNL, I/B/E/S-First Call and *Value Line*. Mr. Moul's DCF result of 9.15% includes an adjusted dividend yield of 3.65% and an expected growth rate of 5.50%. Mr. Moul then adds a flotation cost adjustment of 0.14% to arrive at a DCF equity cost rate of 9.29% for NIPSCO.

Q. PLEASE EXPRESS YOUR CONCERNS WITH MR. MOUL'S DCF STUDY.

A. I have two primary issues with Mr. Moul's DCF equity cost rate: (1) the DCF growth rate; and (2) the flotation cost adjustment.

1. DCF Growth Rate

Q. PLEASE CRITIQUE MR. MOUL'S DCF GROWTH RATE OF 5.50%.

A. In Schedules 6 and 7, Mr. Moul provides 17 alternative measures of growth he claims to have reviewed in arriving at his 5.50% growth rate. The average of these growth rates is only 4.65%. In addition, only four of the seventeen growth rates are as large as 5.50%. The data reviewed by Mr. Moul support a DCF growth that is below Mr. Moul's 5.50%.

1 **B. CAPM Approach**

2
3 **Q. PLEASE DISCUSS MR. MOUL'S CAPM.**

4 A. At pages 46-51 of his testimony and in Schedule 11, Mr. Moul develops an equity cost
5 rate by applying the CAPM approach to his group of electric companies. His CAPM
6 results are summarized in Panel D of Exhibit JRW-13. Mr. Moul uses a long-term risk-
7 free rate of **3.75%**, a beta of 0.74, and a market risk premium of 6.96%. This
8 produces a CAPM equity cost rate of 8.90%. He then adds a size adjustment of
9 1.10% and a flotation cost adjustment of 0.14% to arrive at a CAPM equity cost rate
10 of 10.14% for NIPSCO

11 **Q. WHAT ARE THE ERRORS IN MR. MOUL'S CAPM ANALYSIS?**

12 A. There are primarily two flaws with Mr. Moul's CAPM analysis: (1) the equity risk
13 premium of 6.96%; (2) the size adjustment of 1.10%; and (3) the flotation cost
14 adjustment of 0.14%. The size and flotation cost adjustments were previously addressed.

15

16 1. Equity Risk Premium

17
18 **Q. PLEASE REVIEW THE ERRORS IN MR. MOUL'S EQUITY OR MARKET**
19 **RISK PREMIUM USED IN HIS CAPM APPROACH.**

20 A. The primary problem with Mr. Moul's CAPM analysis is the size of the market or equity
21 risk premium. Mr. Moul develops a market risk premium of 6.96% which is the average
22 of: (1) the 1926-2014 historical risk premium results from the Ibbotson study of 8.08%;

and (2) a projected market risk premium of 5.83% which uses an expected market return that is the average of: (a) *Value Line's* 3-5 year annual return projection of 9.89% and (b) a DCF expected market return using the S&P 500 of 9.27%, minus the risk-free rate of 3.75%. The primary error with Mr. Moul's equity risk premium is that both the Ibbotson historical returns and Mr. Moul's projected market returns are poor measures of expected market risk premiums.

Q. PLEASE ADDRESS THE PROBLEMS WITH MR. MOUL'S HISTORICAL RISK PREMIUM.

A. Mr. Moul computes a historical risk premium of 8.08% based on the difference between the arithmetic mean stock and bond income returns over the 1926-2013 period. There are two flaws to this approach. First, he uses total stock returns but not total bond returns. Using only the bond income returns decreases the return on bonds and hence inflates the indicated market risk premium. Second, as previously discussed, there are issues with computing an expected equity risk premium using historical stock and bond returns. In short, there are a myriad of empirical problems, which result in historical market returns producing inflated estimates of expected risk premiums. Among the errors are the U.S. stock market survivorship bias (the "Peso Problem"), the company survivorship bias (only successful companies survive – poor companies do not survive), and unattainable return bias (the Ibbotson procedure presumes monthly portfolio rebalancing).

1 **Q. PLEASE ASSESS MR. MOUL'S EQUITY RISK PREMIUM DERIVED FROM**
2 **APPLYING THE DCF MODEL TO THE S&P 500.**
3 A. Mr. Moul also estimated an expected market return of 9.27% by applying the DCF
4 model to the S&P 500. This approach uses a dividend yield of 2.14% and an
5 expected DCF growth rate of 7.13%. The primary error is that the expected DCF
6 growth rate is the projected 5-year EPS growth rate for the companies in the S&P 500
7 as reported by First Call. As explained below, this produces an overstated expected
8 market return and equity risk premium.
9
10 **Q. WHAT EVIDENCE CAN YOU PROVIDE THAT MR. MOUL'S S&P 500**
11 **GROWTH RATE IS ERRONEOUS?**
12 A. Mr. Moul's expected S&P 500 growth rate of 7.13% represents the forecasted 5-year
13 EPS growth rates of Wall Street analysts. The error with this approach is that the EPS
14 growth rate forecasts of Wall Street securities analysts are overly optimistic and
15 upwardly biased. This is detailed at length previously in my testimony. Further, a
16 long-term growth rate of 7.13% is inconsistent with economic and earnings growth in
17 the U.S. While the long-term economic and earnings growth rate in the U.S. has only
18 been in the 6% to 7% range, the trend in GDP growth and projections of long-term
19 GDP growth are well below this range.
20 **Q. PLEASE DISCUSS THE TREND IN GDP GROWTH.**

A. The trend in GDP growth suggests lower future economic growth than the long-term historical GDP growth. The historical GDP growth rates for 10-, 20-, 30-, 40- and 50-years are computed from the data provided on page 1 of Exhibit JRW-14.

Table 5: Historic GDP Growth Rates

10-Year Average - 2005-2014	**3.6%**
20-Year Average - 1995-2014	**4.4%**
30-Year Average - 1985-2014	**5.0%**
40-Year Average - 1975-2014	**6.2%**
50-Year Average - 1965-2014	**6.7%**

These data clearly suggest that nominal GDP growth in recent decades has slowed to the 4.0% area.

Q. ARE THE LOWER GDP GROWTH RATES OF RECENT DECADES CONSISTENT WITH THE FORECASTS OF GDP GROWTH?

A. Yes. A lower range is also consistent with long-term GDP forecasts. There are several forecasts of annual GDP growth that are available from economists and government agencies. These are listed on page 2 of Exhibit JRW-14. The mean 10-year nominal GDP growth forecast (as of February 2015) by economists in the recent *Survey of Professional Forecasters* is 4.7%. The Energy Information Administration ("EIA"), in its projections used in preparing *Annual Energy Outlook,* forecasts long-term GDP growth of 4.2% for the period 2013-2040.[34] The Congressional Budget Office ("CBO"), in its forecasts for the period 2015 to 2040, projects a nominal GDP growth

[34]Energy Information Administration, A*nnual Energy Outlook,* http://www.cbo.gov/publication/49973.

1 rate of 4.3%.[35] Finally, the Social Security Administration ("SSA"), in its Annual
2 OASDI Report, provides a projection of nominal GDP from 2014-2090.[36] The
3 projected GDP growth rate over this period is 4.5%.
4
5 **Q. WHY IS GDP GROWTH RELEVANT IN YOUR DISCUSSION OF MR.**
6 **MOUL'S USE OF THE LONG-TERM EPS GROWTH RATES IN**
7 **DEVELOPING A MARKET RISK PREMIUM FOR HIS CAPM?**
8 A. Because, as indicated in recent research, the long-term earnings growth rates of
9 companies are limited to the growth rate in GDP.
10
11 **Q. PLEASE HIGHLIGHT THE RESEARCH ON THE LINK BETWEEN**
12 **ECONOMIC AND EARNINGS GROWTH AND EQUITY RETURNS.**
13 A. Brad Cornell of the California Institute of Technology recently published a study on
14 GDP growth, earnings growth, and equity returns. He finds that long-term EPS
15 growth in the U.S. is directly related to GDP growth, with GDP growth providing an
16 upward limit on EPS growth. In addition, he finds that long-term stock returns are
17 determined by long-term earnings growth. He concludes with the following
18 observations:[37]

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[35]Congressional Budget Office, *2015 Outlook for the Budget and the Economy*. http://www.cbo.gov/publication/49973.
[36] Social Security Administration, 2014 Annual Report of the Board of Trustees of the Old-Age, Survivors, and Disability Insurance (OASDI) Program. http://www.ssa.gov/oact/tr/2014/X1_trLOT.html
[37] Bradford Cornell, "Economic Growth and Equity Investing," *Financial Analysts Journal* (January/February,

> The long-run performance of equity investments is fundamentally linked to growth in earnings. Earnings growth, in turn, depends on growth in real GDP. This article demonstrates that both theoretical research and empirical research in development economics suggest relatively strict limits on future growth. In particular, real GDP growth in excess of 3 percent in the long run is highly unlikely in the developed world. In light of ongoing dilution in earnings per share, this finding implies that investors should anticipate real returns on U.S. common stocks to average no more than about 4–5 percent in real terms.

Given a long-term inflation expectation in the 2% to 3% range, the results imply nominal expected stock market returns in the 7% to 8% range. As such, Mr. Moul's projected earnings growth rates and implied expected stock market returns and equity risk premiums are not indicative of the realities of the U.S. economy and stock market. As such, his expected CAPM equity cost rate is significantly overstated.

Q. PLEASE PROVIDE A SUMMARY ASSESSMENT OF MR. MOUL'S PROJECTED EQUITY RISK PREMIUM DERIVED FROM EXPECTED MARKET RETURNS.

A. Mr. Moul's market risk premium derived from his DCF application to the S&P 500 is inflated due to errors and bias in his study. Investment banks, consulting firms, and CFOs use the equity risk premium concept every day in making financing, investment, and valuation decisions. On this issue, the opinions of CFOs and financial forecasters

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2010), p. 63.

are especially relevant. CFOs deal with capital markets on an ongoing basis since they must continually assess and evaluate capital costs for their companies. They are well aware of the historical stock and bond return studies of Ibbotson. The CFOs in the December 2015 *CFO Magazine* – Duke University Survey of about 500 CFOs shows an expected return on the S&P 500 of 6.49% over the next ten years. In addition, the financial forecasters in the February 2015 Federal Reserve Bank of Philadelphia survey expect an annual market return of 5.79% over the next ten years.[38] As such, with a more realistic equity or market risk premium, the appropriate equity cost rate for a public utility would be in the 8.0% to 9.0% range, and not in the 10.0% to 11.0% range.

C. Summary of Rate of Return Issues

Q. PLEASE REVIEW THE RATE OF RETURN ISSUES IN THIS CASE.

A. The most significant areas of disagreement in measuring NIPSCO's cost of capital are: (1) the Company's proposed capital structure that includes a common equity ratio of 58.44%; (2) the overstated growth rate in Mr. Moul's DCF equity cost rate estimates, (3) the projected interest rates and market or equity risk premiums in Mr. Moul's risk premium and CAPM approaches; and (4) whether or not equity cost rate adjustments are need to account for flotation costs and the size of the Company.

[38] *Id., p. 67.*

1

2 **Q. DOES THIS CONCLUDE YOUR TESTIMONY?**

3 A. Yes.

APPENDIX B: CAPITAL COSTS IN TODAY'S MARKETS

Q. PLEASE DISCUSS CAPITAL COSTS IN U.S. MARKETS.

A. Long-term capital cost rates for U.S. corporations are a function of the required returns on risk-free securities plus a risk premium. The risk-free rate of interest is the yield on long-term U.S. Treasury bonds. The yields on 10-year U.S. Treasury bonds from 1953 to the present are provided on Panel A of Exhibit JRW-2. These yields peaked in the early 1980s and have generally declined since that time. These yields fell to below 3.0% in 2008 as a result of the financial crisis. From 2008 until 2011, these rates fluctuated between 2.5% and 3.5%. In 2012, the yields on 10-year Treasuries declined from 2.5% to 1.5% as the Federal Reserve initiated its Quantitative Easing III ("QEIII") program to support a low interest rate environment. These yields increased from mid-2012 to about 3.0% as of December of 2013 on speculation of a tapering of the Federal Reserve's QEIII policy. Since that time, the ten-year Treasury yield declined and bottomed out at 1.7% in January of 2015. These yields increased in 2015, and now are about 2.20%.

Panel B on Exhibit JRW-2 shows the differences in yields between ten-year Treasuries and Moody's Baa-rated bonds since the year 2000. This differential primarily reflects the additional risk premium required by bond investors for the risk associated with investing in corporate bonds as opposed to obligations of the U.S. Treasury. The difference also reflects, to some degree, yield curve changes over time. The Baa rating is the lowest investment grade bond rating for corporate bonds. The yield differential hovered in the 2.0% to 3.5% range until 2005, declined to 1.5% until late 2007, and then increased significantly in response to the financial crisis. This differential peaked at

6.0% at the height of the financial crisis in early 2009 due to tightening in credit markets, which increased corporate bond yields, and the "flight to quality," which decreased Treasury yields. The differential subsequently declined, and has been in the 2.5% range.

The risk premium is the return premium required by investors to purchase riskier securities. The risk premium required by investors to buy corporate bonds is observable based on yield differentials in the markets. The market risk premium is the return premium required to purchase stocks as opposed to bonds. The market or equity risk premium is not readily observable in the markets (like bond risk premiums) since expected stock market returns are not readily observable. As a result, equity risk premiums must be estimated using market data. There are alternative methodologies to estimate the equity risk premium, and these alternative approaches and equity risk premium results are subject to much debate. One way to estimate the equity risk premium is to compare the mean returns on bonds and stocks over long historical periods. Measured in this manner, the equity risk premium has been in the 5% to 7% range.[1] However, studies by leading academics indicate that the forward-looking equity risk premium is actually in the 4.0% to 6.0% range. These lower equity risk premium results are in line with the findings of equity risk premium surveys of CFOs, academics, analysts, companies, and financial forecasters.

Q. PLEASE DISCUSS INTEREST RATES ON LONG-TERM UTILITY BONDS.

A. Panel A of Exhibit JRW-3 provides the yields on A-rated public utility bonds. These yields peaked in November 2008 at 7.75% and henceforth declined significantly. These yields declined to below 4.0% in mid-2013, and then increased with interest rates in general to the 4.85% range as of late 2013. These rates dropped significantly during

[1] See Exhibit JRW-11, p. 5-6.

2014 due to economic growth concerns and were bottomed out below 4.0% in the first quarter of 2015. They have since increased with interest rates in general and are in the 4.25% range.

Panel B of Exhibit JRW-3 provides the yield spreads between long-term A-rated public utility bonds relative to the yields on 20-year U.S. Treasury bonds. These yield spreads increased dramatically in the third quarter of 2008 during the peak of the financial crisis and have decreased significantly since that time. For example, the yield spreads between 20-year U.S. Treasury bonds and A-rated utility bonds peaked at 3.4% in November 2008, declined to about 1.5% in the summer of 2012, and have remained in that range.

Q. PLEASE PROVIDE MORE DETAILS ABOUT THE FEDERAL RESERVE'S POLICY AND INTEREST RATES.

A. On December 16th, 2015, the Federal Reserve decided to increase the target rate for Federal Funds to ¼ - ½ percent. In the release, the Federal Open Market Committee ("FOMC") included the following observations:[2]

> The Committee currently expects that, with gradual adjustments in the stance of monetary policy, economic activity will continue to expand at a moderate pace and labor market indicators will continue to strengthen. Overall, taking into account domestic and international developments, the Committee sees the risks to the outlook for both economic activity and the labor market as balanced. Inflation is expected to rise to 2 percent over the medium term as the transitory effects of declines in energy and import prices dissipate and the labor market strengthens further. The Committee continues to monitor inflation developments closely.

The increase comes after the range was kept in the 0.0 to ¼ percent range for over five years in order to spur economic growth in the wake of the financial crisis. The move

[2] Board of Governors of the Federal Reserve System, *FOMC Statement* (Dec. 16, 2015).

followed by almost two years after he end of QEIII, the Federal's Reserve's bond buying program. The Federal Reserve has been cautious in its approach to scaling its monetary intervention, and has paid close attention to a number of economic variables, including GDP growth, retail sales, consumer confidence, unemployment, the housing market, and inflation. With improvements in most areas, The Federal Reserve has expressed concern with the low inflation rate – below the Fed's target of 2.0%.

Q. HOW HAS THE YIELD ON TEN-YEAR TREASURY BONDS REACTED TO THE FEDERAL RESERVE'S MONETARY POLICY ACTIONS?

A. The yield on the ten-year Treasury note was 3.0% as of January 2, 2014. This yield trended down during 2014, and bottomed out at 1.7% in January of 2015. With speculation growing about an increase in the Federal Reserve's discount rate, the ten-year yield subsequently increased to almost 2.5% in July. However, global economic growth concerns, and in particular China, have led to a decline in the ten-year Treasury yield to about 2.2%.[3]

Q. YOU DISCUSS THE RECENT FEDERAL RESERVE POLICY AND CURRENT CONDITIONS IN THE ECONOMY AND THE FINANCIAL MARKETS. PLEASE PROVIDE A LONG-TERM PERSPECTIVE ON INTEREST RATES AND CAPITAL COSTS.

A. In the long run, the key drivers of economic growth measured in nominal dollars are population growth, the advancement and diffusion of science and technology, and currency inflation. Although we experienced rapid economic growth during the "post-war" period (the 63 years that separated the end of World War II and the 2008 financial

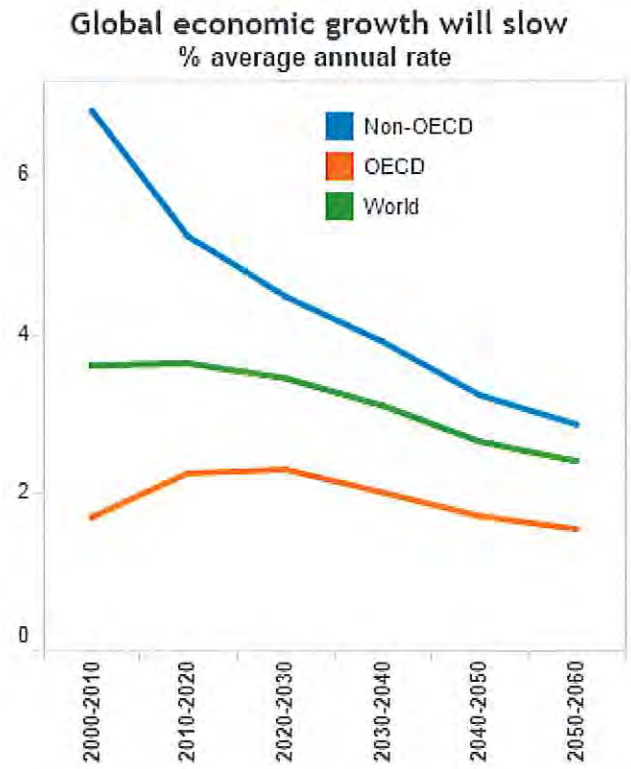
[3] http://research.stlouisfed.org/fred2/series/DGS10/downloaddata.

crisis), the post-war period is not necessarily reflective of expected future growth. It was marked by a near-trebling of global population, from under 2.5 billion to approximately 6.7 billion. Over the succeeding 63 years, according to U.N. projections, the global population will grow considerably more slowly, reaching approximately 10.3 billion in 2070. With population growth slowing, life expectancies lengthening, and post-war "baby boomers" reaching retirement age, median ages in developed-economy nations have risen and continue to rise. The postwar period was also marked by rapid catch-up growth as Europe, Japan, and China recovered from successive devastations and as regions such as India and China deployed and leapfrogged technologies that had been developed over a much longer period in earlier-industrialized nations. That period of rapid catch-up growth is coming to an end. For example, although China remains one of the world's fastest-growing regions, its growth is now widely expected to slow substantially. This convergence of projected growth in the former "second world" and "third world" towards the slower growth of the nations that have long been considered "first world" is illustrated in this "key findings" chart published by the Organization for Economic Co-operation and Development:[4]

[4] See http://www.oecd.org/eco/outlook/lookingto2060.htm.

Figure 1: Projected Global Growth

Global growth will slow from 3.6% in 2010-2020 to 2.4% in 2050-2060 and will be increasingly driven by innovation and investment in skills.

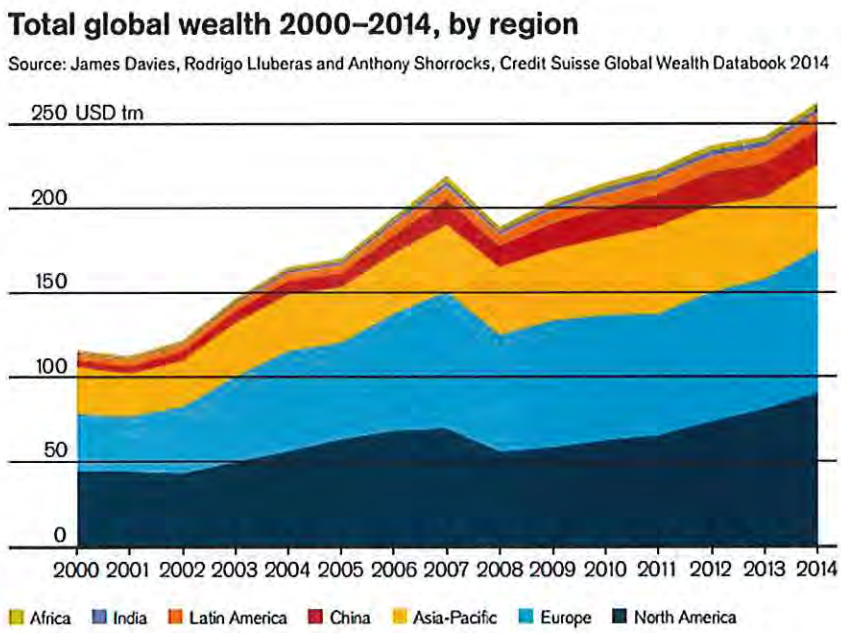


As to dollar inflation, it has declined to far below the level it reached in the 1970s. The Federal Reserve targets a 2% inflation rate, but has been unable to effect even that much inflation. Indeed, inflation has been below the Fed's target rate for over three years due in to a number of factors, including slow global economic growth, slack in the economy, and declining energy and commodity prices. The slow pace of inflation is also reflected in the decline in forecasts of future inflation. The Energy Information Administration's annual Energy Outlook includes in its nominal GDP growth projection

a long-term inflation component, which the EIA projects at only 1.8% per year for its forecast period through 2040.[5]

All of this translates into slowed growth in annual economic production and income, even when measured in nominal rather than real dollars. Meanwhile, the stored wealth that is available to fund investments has continued to rise. According to the most recent release of the Credit Suisse global wealth report, global wealth has more than doubled since the turn of this century, notwithstanding the temporary setback following the 2008 financial crisis:

Figure 2: Global Wealth – 2000-2014



These long-term trends mean that overall, and relative to what had been the post-war norm, the world now has more wealth chasing fewer opportunities for investment rewards. Ben Bernanke, the former Chairman of the Federal Reserve, called this phenomenon a "global savings glut."[6] Like any other liquid market, capital markets are

[5]See EIA Annual Energy Outlook 2014, Table 20 (available at http://www.eia.gov/forecasts/aeo/tables_ref.cfm).
[6] Ben S. Bernanke, *The Global Saving Glut and the U.S. Current Account Deficit* (Mar. 10, 2005), available at

subject to the law of supply and demand. With a large supply of capital available for investment and relatively scarce demand for investment capital, it should be no surprise to see the cost of investment capital decline.

Q. RELATEDLY, PLEASE HIGHLIGHT FORMER FEDERAL RESERVE CHAIRMAN BENJAMIN BERNANKE'S RECENT TAKE ON THE LOW INTEREST RATES IN THE U.S.

A. Mr. Bernanke addressed the issue of the continuing low interest rates recently on his weekly Brookings Blog. Bernanke indicated that the focus should be on real and not nominal interest rates and noted that, in the long term, these rates are not determined by the Federal Reserve:[7]

> If you asked the person in the street, "Why are interest rates so low?," he or she would likely answer that the Fed is keeping them low. That's true only in a very narrow sense. The Fed does, of course, set the benchmark nominal short-term interest rate. The Fed's policies are also the primary determinant of inflation and inflation expectations over the longer term, and inflation trends affect interest rates, as the figure above shows. But what matters most for the economy is the real, or inflation-adjusted, interest rate (the market, or nominal, interest rate minus the inflation rate). The real interest rate is most relevant for capital investment decisions, for example. The Fed's ability to affect real rates of return, especially longer-term real rates, is transitory and limited. Except in the short run, real interest rates are determined by a wide range of economic factors, including prospects for economic growth—not by the Fed.

Bernanke also addressed the issue about whether low-interest rates are a short-term aberration or a long-term trend:[8]

> Low interest rates are not a short-term aberration, but part of a long-term trend. As the figure below shows, ten-year government bond

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http://www.federalreserve.gov/boarddocs/speeches/2005/200503102/.

[7] Ben S. Bernanke, "Why are Interest Rates So Low," Weekly Blog, Brookings, March 30, 2015. http://www.brookings.edu/blogs/ben-bernanke/posts/2015/03/30-why-interest-rates-so-low.

[8] *Ibid.*

yields in the United States were relatively low in the 1960s, rose to a peak above 15 percent in 1981, and have been declining ever since. That pattern is partly explained by the rise and fall of inflation, also shown in the figure. All else equal, investors demand higher yields when inflation is high to compensate them for the declining purchasing power of the dollars with which they expect to be repaid. But yields on inflation-protected bonds are also very low today; the real or inflation-adjusted return on lending to the U.S. government for five years is currently about minus 0.1 percent.

Figure 3:
Interest Rates and Inflation
1960-Present

Source: Federal Reserve Board, BLS.

BROOKINGS

Q. WHAT IS YOUR TAKE ON ECONOMISTS' FORECASTS HIGHER INTEREST RATES?

A. In the last couple years, with the end of the Fed's QEIII program as well as in anticipation of the Fed's December decision to raise the Federal Funds rate, there have been forecasts of higher interest rates. However, these forecasts have proven to be wrong. For example, after the announcement of the end of QEIII program, all the economists in Bloomberg's interest rate survey forecasted interest rates would increase in 2014, and

100% of the economists were wrong. According to the *Market Watch* article:[9]

> The survey of economists' yield projections is generally skewed toward rising rates — only a few times since early 2009 have a majority of respondents to the Bloomberg survey thought rates would fall. But the unanimity of the rising rate forecasts in the spring was a stark reminder of how one-sided market views can become. It also teaches us that economists can be universally wrong.

Two other financial publications have produced studies on how economists consistently predict higher interest rates yet they have been wrong. The first publication, entitled "How Interest Rates Keep Making People on Wall Street Look Like Fools," evaluated economists' forecasts for the yield on ten-year Treasury bonds at the beginning of the year for the last ten years.[10] The results demonstrated that economists consistently predict that interest rates will go higher, and interest rates have not fulfilled the predictions.

The second study tracked economists' forecasts for the yield on ten-year Treasury bonds on an ongoing basis from 2010 until 2015.[11] The results of this study, which was entitled "Interest Rate Forecasters are Shockingly Wrong Almost All of the Time," are shown in Figure 4 and demonstrate how economists continually forecast that interest rates are going up, and they do not.

Figure 4: Economists' Forecasts of the Ten-Year Treasury Yield 2010-2015

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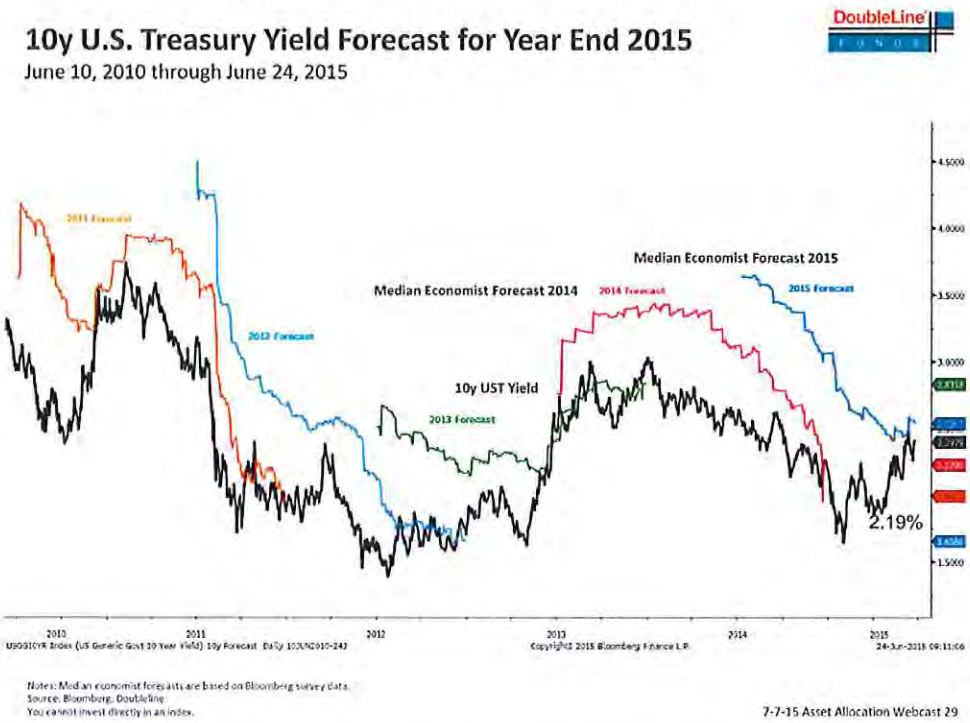
[9] Ben Eisen, "Yes, 100% of economists were dead wrong about yields, *Market Watch*," October 22, 2014. Perhaps reflecting this fact, *Bloomberg* reported that the Federal Reserve Bank of New York has stopped using the interest rate estimates of professional forecasters in the Bank's interest rate model due to the unreliability of those forecasters' interest rate forecasts. See Susanne Walker and Liz Capo McCormick, "Unstoppable $100 Trillion Bond Market Renders Models Useless," *Bloomberg.com* (June 2, 2014). http://www.bloomberg.com/news/2014-06-01/the-unstoppable-100-trillion-bond-market-renders-models-useless.html.

[10] Joe Weisenthal, "How Interest Rates Keep Making People on Wall Street Look Like Fools," Bloomberg.com, March 16, 2015. http://www.bloomberg.com/news/articles/2015-03-16/how-interest-rates-keep-making-people-on-wall-street-look-like-fools.

[11] Akin Oyedele, "Interest Rate Forecasters are Shockingly Wrong Almost All of the Time," *Business Insider*, July 18, 2015. http://www.businessinsider.com/interest-rate-forecasts-are-wrong-most-of-the-time-2015-7.



Source: Akin Oyedele, "Interest Rate Forecasters are Shockingly Wrong Almost All of the Time," *Business Insider*, July 18, 2015. http://www.businessinsider.com/interest-rate-forecasts-are-wrong-most-of-the-time.

Q. WHAT DO YOU RECOMMEND THE COMMISSION DO REGARDING THE INTEREST RATE FORECASTS OF ECONOMISTS?

A. I suggest that the Commission ignore these forecasts because, as the above studies indicate, economists regularly predict that interest rates are going up, and they have consistently been wrong. Obviously, investors are well aware of the consistently wrong forecasts of higher interest rates, and therefore place little weight on such forecasts. Investors would not be buying long-term Treasury bonds or utility stocks at their current yields if they expected interest rates to suddenly increase, thereby producing higher yields and negative returns. Forecasting prices and rates that are determined in the financial markets, such as interest rates, the stock market, and gold prices, appears to be impossible to accurately do.

Q. FINALLY, WHAT ARE YOUR OBSERVATIONS REGARDING THE OUTLOOK FOR INTEREST RATES AND CAPITAL COSTS?

A. I believe that there are several factors driving the markets.

First, the economy has been growing for over five years, and, as noted above, the Federal Reserve continues to see continuing strength in the economy. The labor market has improved better than expected, with unemployment now down to 5.0%.

Second, interest rates remain at historically low levels and are likely to remain low. There are two factors driving the continued lower interest rates: (1) inflationary expectations in the U.S. remain low and remain below the FOMC's target of 2.0%; and (2) global economic growth – including Europe where growth is stagnant and China where growth is slowing significantly. As a result, while the yields on ten-year U.S. Treasury bonds are low by historical standards, these yields are well above the government bond yields in Germany, Japan, and the United Kingdom. Thus, U.S. Treasuries offer an attractive yield relative to those of other major governments around the world, thereby attracting capital to the U.S. and keeping U.S. interest rates down.

Q. PLEASE SUMMARIZE YOUR CONCLUSIONS ON THE STATE OF THE MARKETS AND CAPITAL COSTS.

A. Overall, the economy and capital markets have recovered and are looking to the future and, with low interest rates and relatively high stock prices, capital costs continue to be at relatively low levels. Because an appropriate ROE should reflect the current cost of capital, and capital costs are historically low, ROEs should reflect these low capital costs.

AFFIRMATION

I affirm, under the penalties for perjury, that the foregoing representations are true.

J. Randall Woolridge
Consultant for
Indiana Office of Utility Consumer Counselor

January 22, 2016
Date

Cause No. 44688
NIPSCO